BIG K

GAMES TO BEEP OVER/
UTILITIES TO WEEP OVER/
for Spectrum, BBC, CBM 64,
Vic, Electron, Oric!

No. 8 NOV. 1984 85p



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BAM AND POW — MEET ZAP

LOVE THEM or loathe them, comics have been part of British society for well over 100 years. At worst they are mildly entertaining, at best a creative art form that is acquiring an international reputation, bringing fame to the writers and artists of the medium. Much like the computer game biz — only things seem to be happening a lot faster there.

There is a more common link between the two worlds — imagination. Without it comics couldn't exist and computer games would still be at the level of Nolan Bushnell's 'Pong'. It was only a matter of time before the two media formed a more physical bond. That time has come and this issue BIG K take an exclusive look at the making of two games based on the 2000 AD character, *Strontium Dog*. Continuing the theme, Steve Keaton examines the latest manifestation of some American comics characters in the computer game world.

Meanwhile, our popular and oft-quoted review section continues its renovation and our ratings system completes its revamp. Now the important overall K-rating can be clearly seen on the top line of each review with the individual category ratings in their usual place below the review.

Our Charts page also undergoes a significant facelift reflecting the domination computer games now hold over the whole recreational software market.

As always we welcome your comments (and H. Polipp-Hughes of Grantham is welcome to collect his brick at any time) on BIG K or computer life in general.

RICHARD BURTON

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CONTENTS

GAMES PROGRAMS

UTILITY PROGRAMS

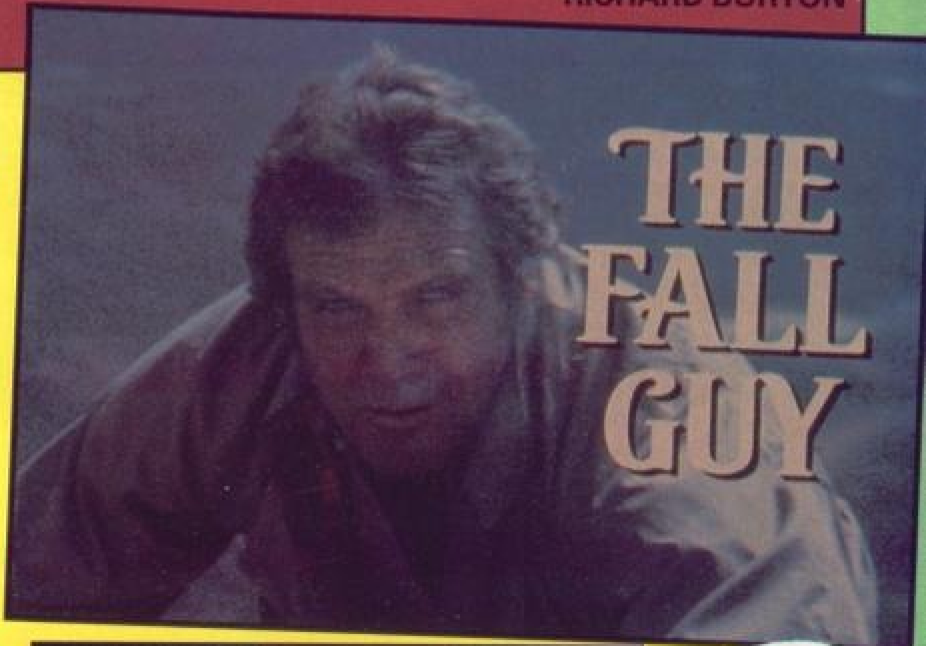
SOFTWARE REVIEWS

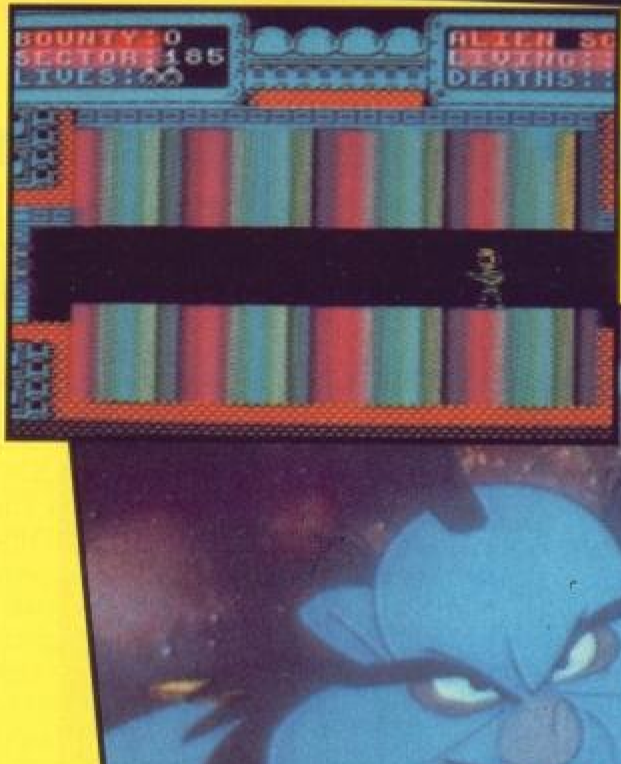
TOOLKITS/HARDWARE

FEATURES

REGULARS

COMPETITION





TRIED & TESTED BIG K GAMES



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侍ソフトーウェアー

SAMURAI SOFTWARE

Castle of the Skull Lord

Packaged in a Special Presentation Box which includes a "Free Dust Cover" for your computer.

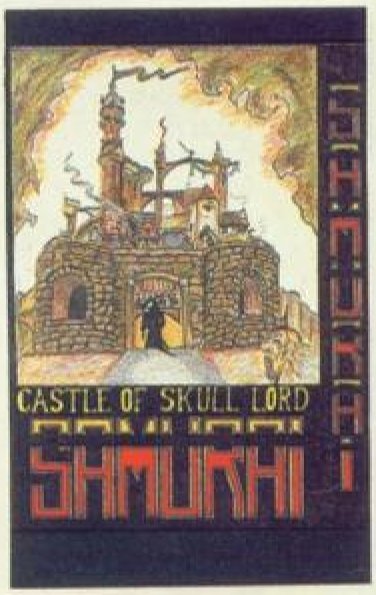
In a battle lost in the mists of time, the necromantic Skull Lord attacked and defeated a race of noble Dwarves. The Dwarves lost many treasures, the most valuable of these being the "Crown of Dwarves Kings". For many ages did they attempt to regain this artifact, and for many ages did they fail.

Now in desperation they call upon you, noble warrior, to attempt that which is beyond their power.

Your quest:— To regain the fabled crown and defeat the all powerful skull lord.

The adventure is of the classic format. Simple verb-noun combinations are expected, and will usually be understood.







Samurai Invaders

You control a fearsome Samurai warrior whose aim is to prevent the Alien invaders from gaining control of the earth. To help you in this task, you are armed with shuriken, fearsome oriental throwing stars.



Ms. Mazey

Can you guide the intrepid Ms. Mazey around her garden maze and collect the daisies? Or will you fall victim to the evil skull riders? (In a garden?) Can you make it to the magical "flower pills". Will you get the "flower power" to zap the skulls? Will Ms. Mazey ever get to see the flower of her heart, Percy Chucka?



Rooster Run

Why DID the chicken cross the road? You don't know? Neither do we, but with the help of this game you may just find out! Your aim is to guide the hapless rooster across the road, then, get in the boat and avoid the aquamarine hazards. What could be simpler?!

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FLARED JEANS FIASCO COMES GOOD

"Y'SEE, TERRY, it's like this.

"There I was, having a quiet vodka slimline in the Winchester, with Dave giving me GBH of the ear'ole about me slate, when in walks this geezer — lovely suit — said did I want to come in on a nice little earner?

"Well, you know me Terry, never miss a trick, so naturally I asked 'im what he was on about. It only turned out he was into this computer business. Now you know me, Terry, always one for high technology — remember them calculators? So the geezer says he's from . . . got the card 'ere somewhere . . . DKTronics — strange name — and would I sign on the dotted on account of he and some other geezers 'ave made this video game based on, wait for it, you and me, Terry!

"So we did a deal there and then and the result is, you're in, my son, to the tune of . . . er . . . half a monkey. Well, twenty quid. No, don't thank me, Terry.

"Anyway, after 'e'd gone I got onto Cutglass Tomkinson, the one 'ose brother is doin' four years in Brixton for video piracy. 'E 'ad this load of computers, so I bought the lot. Cutglass reckons I can shift 'em for an easy two hundred a time. Jupiter Aces, they're called. What do you think of that?

"Now what I want you to do for me Terry is this . . ."

MINDER, from DK Tronics, by agreement with Thames TV, is on the CBM64, Spectrum, Amstrad and all MSX machines. It sells for six sovs less five pee.

COMPUTER ART — *NICE WORK IF YOU CAN GET IT . . .*

. . . AND UNEMPLOYED graduate, Hugh Riley, certainly intends to do just that! He recently beat off all-comers in the Commodore International Computer Art Challenge to carry away as first prize ... a £1,500 goodie-bag of computer equipment, plus the BIG ONE . . .

To wit, a £5,000 educational endowment from Commodore to study computer art anywhere in the world (anywhere? How about, oh, Bali?). Inspiration for the screen scene that earned its creator his jump-jet dream ticket away from the dol'drums' of life in Crumpsall, Manchester was provided by 31-year old Hugh's baby son.

However, though his entry — entitled cryptically enough *Louis (Meditation Failure 126) And Obsessiveness* — may have been triggered by kid Louis, this art belongs to daddy! (You're fired — Ed.)

With the academic world now his graphic oyster, Hugh is in no great hurry to make a final choice of temporary residence, but hot favourite for the honour is (con) currently Ohio State (University), USA.

Hugh comments: "The £5,000 endowment will enable me to learn from some of the world's most renowned experts and at the same time develop techniques which will stand me in good stead when I return to Britain."

He has now sent back his UB40.



CAMEL MAN IN SHOCK NUMBER CRUNCHING ORGY

The number? 3.5 million. This, we hasten to add, is not exactly the income of Jeff Minter, ace programmer, bearded supremo of Llamasoft Ltd. No, it's actually his personal beast score on his own new Commodore game, *Ancipital*.

The game is billed as being a 'Progressive Arcade Game'. This seems to mean that it's a very detailed arcade adventure. Features are one hundred separate screens, with a single key-press HELP facility for each screen. Minter himself claims to have solved only 89%.

Next big question is, does it mean a break with the tradition of furry ungulents — camels, sheep, llamas etc. Surely it can't all end here, with the world's wildlife still unexploited.



FROM UNDERWEAR TO . . . SOFTWARE

SPARKS SEEMED to be flying when BIG K phoned the head office of a certain well-known high street store the other day. We'd called to gen up on reports in the Sunday press that Marks and Spencers (these well known purveyors of foundation garments and accessories) were moving into the computer softwear (sic) business.

"Nothing further to add to the newspaper reports, which are basically correct." Press officer Tony Kelly sounded suitably cagey. "We've a good idea who let this story out, but I'd rather not go into that now." The secrecy surrounding these games scheduled to hit the streets at about the same time as this issue of BIG K — seems perhaps a little unnecessary.

Be that as it may, beyond the facts that three titles will be on sale (*Games Pack*, *Start to Program* and *Games Maker*) in six major stores retailing at £6.95 each and available for the Spectrum only, we are unable to reveal any more details.

MARATHON MEN

CHARITY begins in Bridlington, or so 18-year-old Sean Sullivan and 17-year-old Paddy Bell, who set out to create a new world record in non-stop computer games recently, have reason to believe.

They believe they achieved this record, although their feat won't feature in the *Guinness Book of Records* which refuses (so far) to provide a category for continuous software playing.

Both youngsters were sponsored for the marathon and to date in excess of £500 has been raised for the Kingfisher Trust whose aim is to set up a centre in Bridlington where young people in the town, especially the unemployed, can use their spare time to good effect, developing skills and leisure pursuits.

Paddy managed a 30-hour stint at the keyboard; Sean went on for a staggering 50 hours, but we on BIG K have come up with a title which we dare anyone to try for more than fifty seconds at a time, let alone 50 hours. To wit: *Cuthbert Meets The Thing From The National Coal Board.*

WORLD WAR III NOT GOOD FOR MICROS — OFFICIAL

SHOULD the Pentagoths and Kremloids ever get round to dropping The Big One, the drab post-war existence (for those of us who live through it) will not be lightened by the odd bout of Adventure or Arcade hacking.

Apart from the need for a wind generator or some other alternative energy source, there's EMP to contend with. Electromagnetic pulse, to give the monster its full name, is a huge electrical overload caused by a nuclear blast. The effect, even from a relatively low-yield weapon, would be felt up to 600 miles away. Microchips just can't take it, and the whole lot would go down the tube.

The surprising thing, defence analysts revealed this week, is that military computers and radar circuits are not shielded from the effect. Since modern technowar depends heavily on computerised command and control, this could mean the ridiculous spectacle of NATO and the WP fighting each other very quickly to a standstill in the radioactive ruins. Nice to know you're in the same boat as a five-star general, eh?



STAB

YOU DON'T need a modem and a phone for Cases Computer Simulations, *The Prince*, a multi-user adventure for the Sinclair based on the 15th-century best-seller written by Machiavelli. This one's getting the 1984 Cambridge Programming Award, and is set in Macho's world of Renaissance intrigue and counter-intrigue. Each player is given a password, and the others must leave the room while he or she plays. But watcha youra back, Renaldo, and don'ta crossa upa da Machiavelli boys, O.K? Or tonight you sleep wid-a da fishes.

The ... has doubled its selling space in home computers in 280 of its high street stores, and taken on 120 additional computer consultants [illegible]

In another development British Telecom will sell computer games to most leading high street retailers this autumn at about a third of the price (£250) for which they are normally sold. The corporation launched a cable television venture Gamestar, but has decided to capitalize on its efforts in high street, because of the sluggishness of cable.

THE TIMES
SEPTEMBER 21 1984

IT'S FOR YOO-HOO

"ULLO, 'ULLO, Buzby here. I'm ringing to canvass for support. Save Buzby's Beak, the cry goes out — and for why? 'Cos dark deeds are afoot. Rumours abound. Word is that I'm not considered hi-tech enough for the official dog and bone brigade.

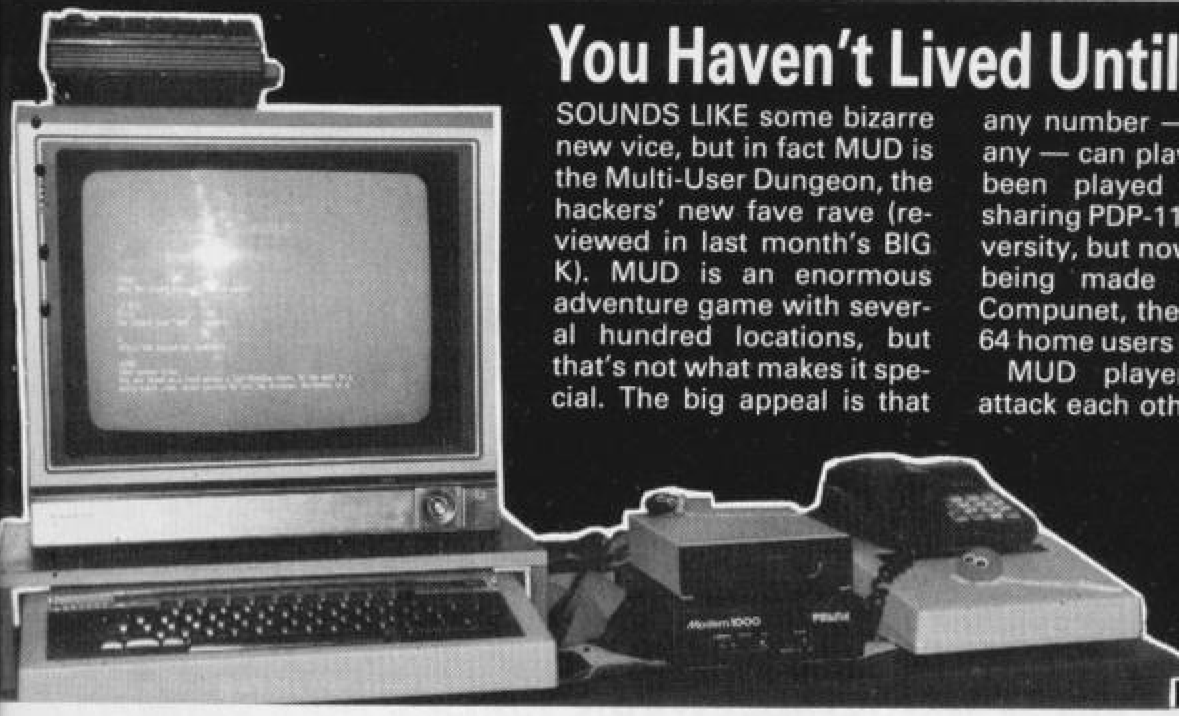
"Worse still, I've heard that there's a rival homing in on my patch. This hot chick goes by the name of *Firebird,* so I've heard. A souped-up winged warrior of the airwaves that's set to boot me into extinction. Well, not without a fight, I say. Let me tell you, I may not be fast, I may not be sleek and aerodynamically A1, but I'm famous and I'm lovable and I'm cuddly and... SQUAAAWWLKK!"

Right. End of space-filling fantasy. On with the news. *Firebird* is seen as Buzby's alter-ego, and is in fact the nom de *plume* (geddit?) of (wait for it) A New Range Of Computer Software currently being put out by those dedicated people who gave you: "Outer Mongolia? But I was dialling my Aunt Doris in Dorking!" Viz, British Telecom.

The BT man-on-the-phone, was at pains to stress that the aim of *Firebird* is to provide open, honest, value-for-money products. To this end, box illustrations have been replaced with screen shots — "What you see is what you get."

Their initial launch of twenty titles, across the range of BBC, CBM 64, Spectrum and Vic 20, are aimed at pocket money punters, and retail at £2.50 each.





You Haven't Lived Until You've Died In MUD...

SOUNDS LIKE some bizarre new vice, but in fact MUD is the Multi-User Dungeon, the hackers' new fave rave (reviewed in last month's BIG K). MUD is an enormous adventure game with several hundred locations, but that's not what makes it special. The big appeal is that any number — well almost any — can play. To date it's been played on a time-sharing PDP-11 at Essex University, but now the game is being made available on Compunet, the Commodore 64 home users network.

MUD players can talk, attack each other, give each other help, all within the adventure universe.

As you gain skill you get to be a Wizard or Witch, and there the sadism really starts. These elite *übermenschen* can use the command 'SNOOP' to watch what other players are doing, torment them, or (some chance we'll bet) give them useful tips. The headline is a quote from an actual player, so watch your sanity! For those prepared to risk it, MUD is to be launched at the beginning of October by Century Communications.

Use 'Smart Milk' To Destroy Alien Biscuit — OK?

SEVEN THIRTY! As you spoon your morning nutritional intake of protein-filled, milk-and-sugar-covered crumbly stuff mouthwards with one hand, you can now use the other to control the antics of Dunk, Crunch, Bixie, Brains and Brian — okay? If you can keep those bleary, morning-after peepers firmly fixed on your monitor screen then you could be game for the latest offering from a certain mecca of brekker — *Weetabix versus the Titchies* is here for your delectation.

As part of a mega-million pound campaign, Weetabix's promotional consultants — Clarke, Cooper — have joined forces with software producers Romik to put out what they claim to be the first-ever promotional computer game.

At the time of going to press, the first packets of these compressed, wheat-based nutritional units with the software hard sell emblazoned across them are winging their way to the shops. The game is only available from Weetabix and retails at £3.75 for those minor mortals not members of the Weetabix Club. Clubites can buy it for a whole pound less. Wow.

Both Romik and Clarke Cooper Ltd would appear to be squirming with excitement at the possibilities of this giant step for bran-kind.

It remains to be seen whether the punters consider this arcade-style shoot-'em-up to be in the best possible taste.

Today the breakfast table, tomorrow — Hollywood? Are we en route for *Weetabix: the Motion Picture.* And who controls the cereal rights?



GARBAGE IN GARBAGE OUT

by The Shadow

You Gotta Be Crazy To Want This Kinda Publicity Part 76: You are looking at the new vital nerve centre of one of the UK's most prestigious games software companies. No, you really are. It's just that the builders haven't moved in yet. Official sources tell us that the scaffold and ladder are for real-time storyboarding of an exciting new range of Kongalikes, while the skip is where the unsolds go. The barrow is for the managing director to take home his paycheck. The company? That would be telling. Oh all right — their Chairman Reads The Guardian. And has a beard. OK?



The **Imagine** saga goes on (yawn) and on: rumours that not one but five games houses are rising from the ashes — but no place seemingly for mega-being **Eugene Evans** . . . hope he saved some of the hard-earned . . . However **Mark Butler** reached shore OK, clinging to an oar, thanks, and can now be found — along with **T. Best** — in dad's firm **Voyager** . . . Said Best Man, meanwhile, keeps mysteriously ringing up the Tower of Power offering what he calls "the real story" on **Imaginopossessions** . . . Sorry, **Tim**, got to invoke the fifty-year rule on this one . . . Fellow Liverpudlians **Software Projects** have meanwhile taken on most of the redundant Imagihackers, who by now (the **Shadow** assumes) know all about The No Possessions Syndrome . . .

All together now, an' let's sing dat ole *QL Blues: "Woke up dis mornin', got het up with my microdrive/It done occurred to me, dis keyboard is just so much jive/Wid'no game software comin', can dis' highly-rated, long-awaited, ex-communicated, exasperated, customer-disorientated machine survive? (Oh yeah)"*

Never mind Making It How Do You Add It Up When You've Got It? . . . Unperturbed by a recent ROM failure with their *Organiser* the lads at **Psion** have found a new use for the tiny computer: Doctors in family planning clinics will be advised about the effects of different kinds of contraceptive pill in a special ROM pack . . .

Lastly, which well-known person non unconnected with the computer industry deep in the heart of Silicon Valley (hedge, hedge) got busted by the LAPD (Dets. **Hutchinson, Starsky**) unloading Olympic Games freebie tickets to eager punters for Large Sums Of Money? Can [Deleted]'s business really such bad shape? **The Shadow** knows, for he walks by night — when everybody knows the idiot should be getting some Zs like the rest of us; the poor old boy looks clapped out these days . . .

IS THIS A KEYBOARD THAT I SEE BEFORE ME?

***OR IS IT something entirely new? The first adventure game scripted by talented newcomer to the micro scene Bill Shakespeare arrived this month. Marketed on his behalf by Oxford Digital Enterprises, it's an interactive version of the doom-laden and angst-ridden* Macbeth.**

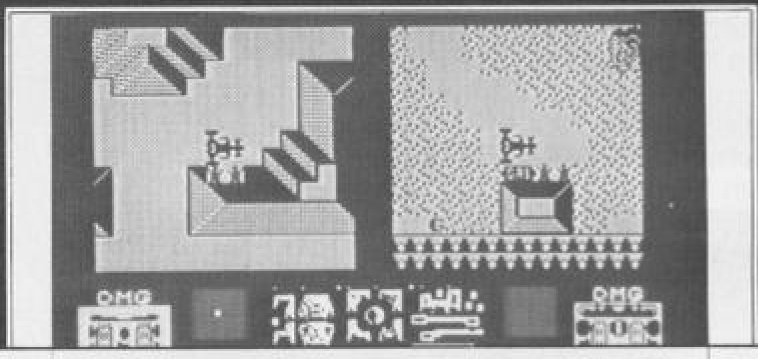
Academic pursuits may well throw up their hands at this one. After all, how can it still be* Macbeth *when the player can alter the entire plot by either being inept enough to get caught red-handed cutting King Duncan's throat, or alternatively by seeing off the vengeful MacDuff at the end thereby ensuring continued occupation of the Scottish throne?



But ODE have done their best to sidestep any accusations of "trivialising". The cassette comes complete with a 174 page book containing a copy of* Macbeth, *plus lengthy notes on the action.

The game itself is a biggy. The play's split into four separate adventures, and there are plenty of graphics screens. The key to solving* Macbeth *seems to be an aptitude for elaborate wordplay. Very Elizabethan. However, a quick look-over suggests that it may not be that easy. Each game segment is ominously followed by a psychoanalysis program. Is it all a plot by Oxford dons to drive the punters mad? Is there a KGB connection?

The public should be told.



TEMPESTUOUS ORIFICE TAKE BRONZE!

STRANGE HINTS of abominable rites and unspeakable practices have emerged from Games Workshop, organisers of *Games Day '84*.

Down at the Royal Horticultural Hall, massed hordes of game-crazed death fanatics queued up to participate as the character of their choice in any one of 50 simultaneous role-playing games. The mind cannot grasp the awesomeness of this scenario.

For those of us not hip to the genre, we speak not of computer games, but of extended psycho-dramas involving up to twenty real physical-type people. (Liveware.) Instead of the computer, one player, the Dungeon Master, oversees the characters and their world. Which brings us to the Games Awards. Plenty of these, twenty-six categories in fact. The best new role-playing game is predictably called *Middle Earth*, but we are pleased to note that the original and totally scrotnig *Judge Dredd* was the subject of the No.1 SF Boardgame. Most enigmatic award — the third prize for games fanzines — went to the exotically titled *Tempestuous Orifice*. If and when we get hold of a copy, you'll hear more.

It is absolutely brain-numbing to discover that this actually was the *first* Games Day — after eight years of the event — to feature computers. Where have they been? The new line may have something to do with the launch of three new Games Workshop titles. *Battlecars* (see pic) is a sort of *Death Race 2000* with heat-seeking missiles. Two mega-road-hogs slug it out with heavy weapons in a city Centre. Also coming is *D-Day*, a two-player version of the well-known war movie.

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SPECTRUM

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Ad Astra	5.95	2.97	06360	Gargoyle

Can you survive in deep space against the deadly phasers of Pira Battlecruisers and Robot Scout Ships, scatter bombs, and the almo impenetrable curtain of lethal mines.

Blade Alley	5.95	2.97	04340	PSS

Six different screens of incredible arcade action featuring Saucer Asteroids, Tie Fighters, Space Hoppers, Banking Spaceship and movi 3D Scenery.

Crusoe	6.00	3.00	07750	Automata

Shipwrecked and stranded on a remote island with nothing but an emp stomach, a bottle of granny's patent elixyr and the clothes he stands up — your job is to return Crusoe home again.

Micro Olympics	5.95	2.97	07070	Micro-Us

Game description as for Commodore 64.

Moon Alert	5.90	2.95	05840	Ocean

Emergency! Battle across the rugged lunar terrain from the wreckage your Space Fighter back to the lunar base. Scrolling landscape cove over 300 screens!

Moon Sweeper	7.95	3.97	10420	Cheetah

You command the Moonsweeper Raider on a deadly seek and fi mission for stranded lunar pioneers. There are four moons to sear guarded by hostile Base Carriers, Short Range Interceptors and Dea Towers.

Olympimania	6.00	3.00	04080	Automata

Starring the Piman in five different Olympic events with a difference who let those alligators into the swimming pool? Features Lurch the Offi Parrot, Mutant Trees and many more surprises.

Special Operations	5.95	2.97	09790	Lothlorien

Superb graphics adventure war game — features 18 different maps, pl maps for resolving skirmishes with enemy patrols, and seven differe levels of play each with a different objective.

Trashman	5.95	2.97	04290	New Gen

Empty all the bins from each road into the dustcart in a race against yo slowly reducing score, get more points doing jobs for householders b step on the grass and you'll get bitten by their dogs and end up with a li — watch out too for cyclists and cars!

War of the Worlds	7.95	3.97	06260	CRL

Based on Jeff Wayne's Musical Version of the H.G. Wells classic. You li in a world under Martian domination — you must survive against the ter of their Fighting Machines and weapons of death.

ORIC

Chess	9.50	4.75	06950	IJK

Quite simply the best version of the game available for your Oric w variable skill, care, sub and speed levels . . . stuck? the computer w suggest a move — just one of the many features of this superb progra

Digger	6.95	3.47	06540	Lothlorien

Fast and challenging — deposit sacks of gold in your bank while attem ing to kill all the monsters on the screen before time runs out.

Ghostman	7.50	3.75	07460	Severn

Control your Ghostman around the Maze eating the dots and fruit avoid the Ghosts who are out to get you. Find the Power-Pills in t corners of the maze and you'll become temporarily invincible. Nine leve each one faster than the previous maze!

Lone Raider	8.50	4.25	03150	Severn

For eons Earth's Battle Fleet has held back the alien Zugs. As Captai the Lone Raider you must breach their defences wreaking havoc on yo way to their Mother Ship.

Trick Shot	7.50	3.75	06970	IJK

You have to pot the balls in the pockets by lining up the cue and hitting cue ball with just the right strength — it's highly realistic and each ball a pocket combination scores differently.

DRAGON 32

Chuckie Egg	7.90	3.95	02300	A&F

Game description as for Electron.

Don't Panic	5.45	2.72	09360	Peaksoft

A great double bill . . . Towers of Death and The Ice Kingdom are t classics that should feature in every collection. But miss a vital clue a you could be playing for months in your quest for the treasure.

Photo-Finish	7.95	3.97	09330	Peaksoft

Superb real-time graphics, authentic race-cards showing previous fo odds based on actual form, races from 5 furlongs to 2 miles, timed rea and a photo-finish feature! For 1-4 players.

Project Volcano	7.95	3.97	07530	Mission

A top secret missile command centre has been discovered in an ext volcano on the Yugoslavian border. It's the heart of a network covering t whole of the Soviet Block — your job is to neutralise it.

S.A.S.	6.95	3.47	09350	Peaksoft

You'll be briefed on your mission and then, equipped with helicop gunships, wire guided missiles and grenades. It's up to you. There' night action feature and nine minefields just to liven things up.

BBC B

	Retail Price	Half Price	Item Code	Software House
Blagger	7.95	3.97	04880	Alligata

Game description as for Commodore 64.

Chuckie Egg	7.90	3.95	02540	A&F

Game description as for Electron.

Mr Wimpy	6.90	3.45	07170	Ocean

The zaniest, craziest burger battle to sizzle your screens! Fight Waldo and the rebel ingredients to make your delicious Wimpy Burgers the best in town.

Spitfire Flight Sim.	7.95	3.97	05990	Alligata

Take off, roll, loop-the-loop and landing must be performed with complete accuracy or your flight will end in disaster — this will have you glued to the screen for hours.

Uncle Claude	7.95	3.97	07480	Alligata

It's workers against bosses because the Union suspects that Uncle Claude (the electronics magnate) is about to lay off the workers. They elect you, Micro Micky to foil this dastardly plan.

ZX81

	Rec. Retail Price	You Choose at Half Price	Item Code	Software House
Cassette 50	9.95	4.97	07700	Cascade

The title says it all because this program has 50 great games on one cassette. We don't have space to list them but they're all here . . . maze, arcade, missile, tactical and logic.

Football Manager	5.95	2.97	01470	Addictive

Captures the real life drama and excitement of the game . . . transfers, full league tables, injuries, promotion and relegation, FA Cup, seven skill levels and much more.

Krazy Kong	3.95	1.97	01590	PSS

Climb the pyramid knocking out the supports for the giant gorilla as you go, meanwhile dodging the barrels and rocks he drops on you.

Pilot	5.95	2.97	01530	Hewson

Take the controls for a night flight, navigate by beacons using the instrumentation, take off, climb, bank left and right, descend and land — you'll learn to master them all.

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COMMODORE 64

	Rec. Retail Price	You Choose at Half Price	Item Code	Software House
Android 2	6.90	**3.45**	07160	Ocean
You are the Android — stop the advance of the Militoids, survive the Maze of Death, rationalise the Paradox Zone and cross the Flatlands — but beware the lethal hoveroids, bouncers and landmines.				
Blagger	7.95	**3.97**	05510	Alligata
Follow the exploits of Rodger the Dodger, master burglar, through banks, shops and houses — but watch out for alarms and very spooky night-watchmen.				
Son of Blagger	7.95	**3.97**	05520	Alligata
You've polished your skills on Blagger, now put them to the test with his son — Slippery Sid's not after money . . . espionage is his game.				
Cavelon	6.90	**3.45**	05860	Ocean
Enter the castle stronghold at your peril! To rescue Guinevere you must ascend six awesome levels dodging and battling the deadly knights. Will the magic of the sword Excalibur make good prevail?				
Dare Devil Dennis	7.95	**3.97**	06790	Visions
So you think you could be a stuntman . . . the money is good but will you live to enjoy it — test your skills on land, sea and snow.				
Hunchback	6.90	**3.45**	03750	Ocean
Rescue Esmerelda from her castle stronghold. Featuring the Ramparts, Knights, Arrows, Fireballs, The Pit and of course those Bells!				
Loco	7.95	**3.97**	06180	Alligata
Through terrifying hazards and under constant aerial bombardment, this is the nightmare train journey of all time — can you make it before you run out of fuel and become a sitting duck.				
Micro Olympics	5.95	**2.97**	07080	Micro-User
Five track events plus long jump, high jump, pole vault, javelin, discus and hammer — you can take part in them all at the fabulous Micro Olympics.				
Potty Pigeon	7.95	**3.97**	09210	Gremlin
Percy the Potty Pigeon makes suicidal attempts to build his nest by plucking twigs from the path of onrushing traffic — he has one weapon though — his revolting explosive eggs!				
Snooker	8.95	**4.47**	03960	Visions
Accurate table layout, variable shot strength, spin on the ball in any direction, foul feature . . . it's like having your own full size table but guard it or you'll never get a chance to play yourself.				

VIC 20

	Rec. Retail Price	You Choose at Half Price	Item Code	Software House
Bongo	7.95	**3.97**	05210	Anirog
Hilarious game for the whole family — Bongo the Super Mouse sets out to find the stolen diamonds so he can win the hand of the King's daughter in marriage.				
Dungeon Droid	5.00	**2.50**	07630	Novasoft
Your Space Ship is low on Novalite fuel crystals forcing you to land on a planet whose inhabitants worship them. Brave the many dangers in the multi-level tomb before your ship is destroyed.				
Mini Kong	5.95	**2.97**	01780	Anirog
Kong has abducted a young maiden and trapped her in his lair — you have to climb the ladders to rescue her as the angry Kong rains down a stream of barrels to crush you.				
Flight Path 747	7.95	**3.97**	05890	Anirog
As the pilot of this high performance jet liner you must take off from an airfield surrounded by high mountains and having climbed safely over them prepare yourself for a landing in the valleys below.				
Snooker	8.95	**4.47**	02170	Visions
Game description as for Commodore 64				

ELECTRON

	Rec. Retail Price	You Choose at Half Price	Item Code	Software House
Blagger	7.95	**3.97**	05170	Alligata
Game description as for Commodore 64.				
Chuckie Egg	7.90	**3.95**	02190	A&F
Who'd think a farmyard could be so stressful? You must collect the eggs before the nasties get out and eat all your corn. And if the crazy duck gets out of the cage, you're in real trouble!				
737 Flight Simulator	7.95	**3.97**	06420	Dr. Soft
"Start approach well out, starting down from 3000ft at 10nm range, don't forget flap and gear, aim for a 3 degree slope down to the runway, follow up with power to control speed" . . . just one of the manoeuvres in this superb flight simulation — a real test of skill.				
Guardian	7.95	**3.97**	05910	Alligata
Stop the Landers trying to capture Humanoids from your planet surface while tackling flying pods, swarmers, alien bombers, deadly baiters and a carnivorous overblown jellyfish.				
Snooker	8.95	**4.47**	02280	Visions
Game description as for Commodore 64.				

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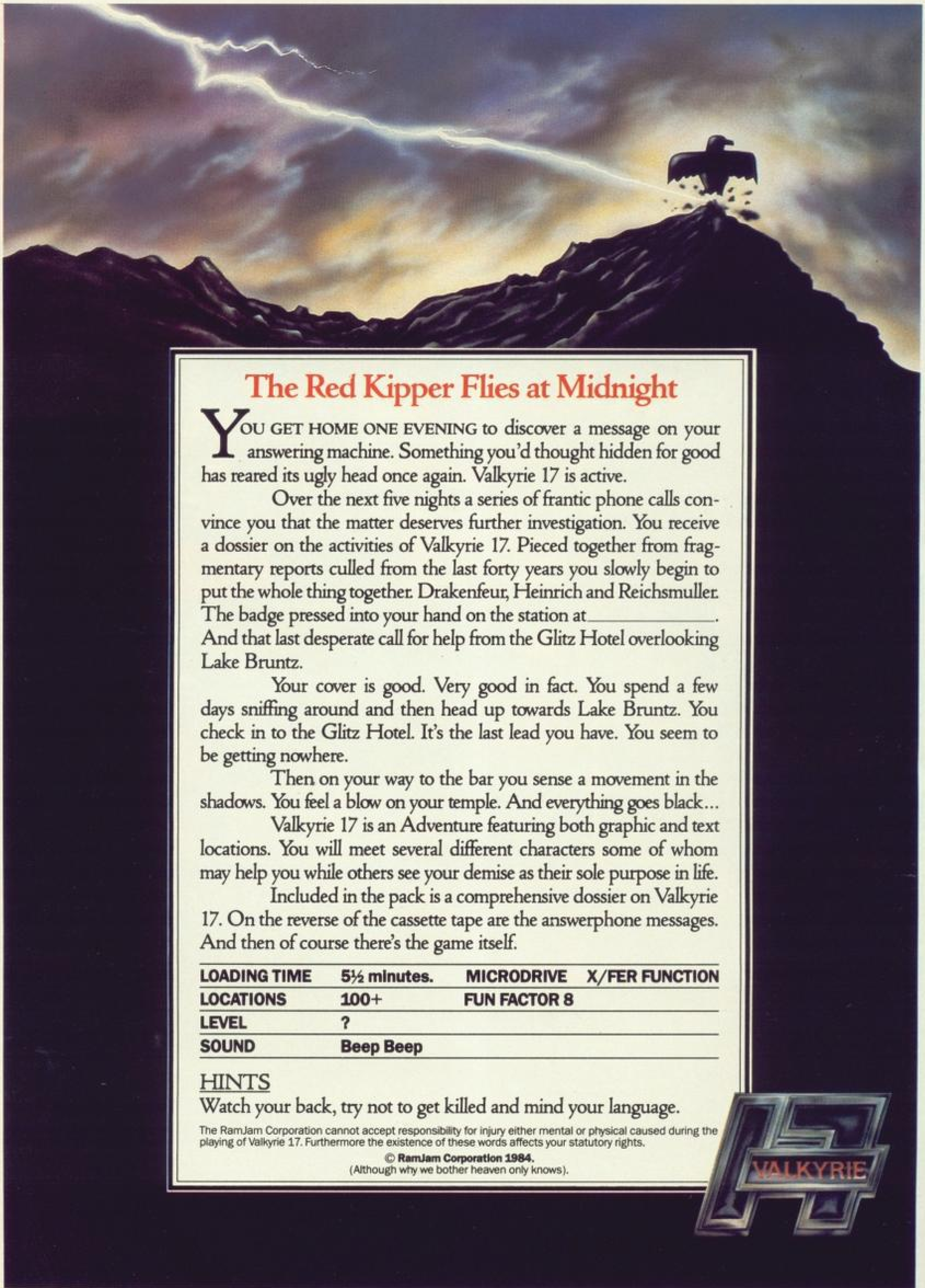
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NEWS feature

BUS LOAD
TRANSPORTS OF DELIGHT
WELSH RARE BYTE
Cardiff's Microbus System

MICROBUS is now being launched in Cardiff. It's a computer program devised by the City Treasurer's Computer Centre to make the urban bus fleet more efficient. "All aspects of the transport system will be computerised," says Eddie Lee, Senior Administrative Officer with Cardiff City Transport. "From traffic management and engineering through to collecting fares".

All vehicles on the road are continually monitored both individually and according to their routes. Drivers are linked by radio to a control room from where the information is fed on to computer. Each journey is scrutinised in case a vehicle breaks down, in which instance a bus on a nearby route can be traced by computer and diverted to pick up stranded passengers. Mileage covered by each bus is also to be recorded, thereby enabling transport managers to observe how vehicles respond to daily wear and tear. Similarly, the computer is programmed to monitor vehicle's fuel supply and to remind drivers when re-fuelling is needed.

The Fleetguard system will encourage drivers to record the easily forgotten small defects which come to light on route — for example, a mirror out of alignment. The driver can radio the computer operator giving the bus number and detailing the work needed. The computer will then inform the engineering section of the fault — and ensure that it is rectified.

"Computers will also be used to cost and record engineering work carried out on each vehicle," says Eddie Lee. "As well as updating the bus' comprehensive life history, it will enable us to determine which make of bus is the most efficient and economic to run. Under our present manual system this is difficult to judge, but when provided with accurate data we'll be able to decide which makes should be added to the fleet and which discarded." Similarly, individual buses can be assessed. They usually last 12-15 years, and the computer is used to pinpoint which vehicles are coming to the ends of their useful lives.



Cardiff City Transport operates a fastfare system, in which drivers don't handle money, instead passengers pay their fares into a volt-slot machine. These machines are disconnected every evening so that the day's cash returns can be counted on computer. The money is then checked against the tickets used. As each ticket specifies the route and stops at which passengers board the bus, the computer also works out which stops and routes are the most popular. This ensures transport managers have sufficient data to pinpoint districts in need of more buses and to show how routes can be extended to cover new estates being built in the city's outer suburbs.

"The computer system is a means of making the bus fleet more competitive," Lee explains. "We also believe that it has marketing potential."

IOLA SMITH

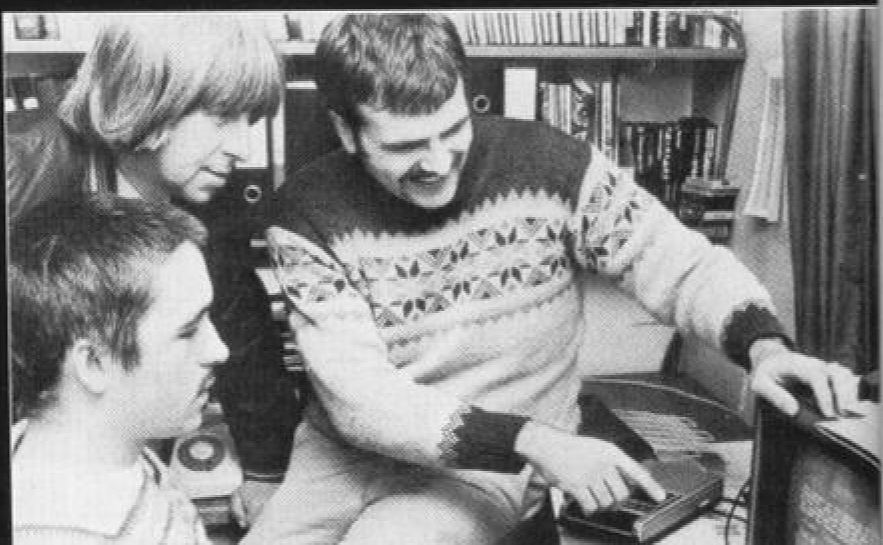
GAMES AID RECOVERY

COMPUTER GAMES have been prescribed as a new road to recovery for serious head injury victims. Burden Neurological Institute in Bristol, is a pioneer in using games as physiotherapy for the brain. Burden's patients, mostly under the age of 20, are playing games for two to three hours a day. The result is rapid improvement in memory, concentration, reasoning ability and hand-eye coordination. The very first on the programme was 18-year-old Richard Bennett.

Richard was knocked down from his motorbike by a car last October. He received serious head injuries and nearly died. He lay in a coma for a month. Friends and family visited — played rock music and chatted — and finally, Richard awoke.

"It wasn't like in the films," said his father. "It was a gradual business; the flicker of an eyelid, the twitch of a finger. Then someone had the bright idea of giving him a pencil. Stiffly, painfully, he scrawled 'R.I.C.H. . . .' and we knew he was going to get better." And when it came to recovery; "he couldn't have been in a better place at a better time." Richard began playing games in February, and is already almost fully recovered — six months early.

So much for the bozos who keep telling us they're harmful.



LET'S GET CRITICAL...

THE BIG K *Reviews!*

COMPUTER GAMES
VIDEO GAMES □ UTILITIES

How we rate them–

KKK	= Magnifico!
KK	= Good-o
K	= So-So
None	= No-No

Reviewers–

Steve Keaton
Richard Burton
Trevor Spall
Kim Aldis
Tony Tyler
Nicky Xikluna
John Conquest
Dave Rimmer

THE INFERNO
Spectrum 48K

KK

What *The Hobbit* is to Tolkein's novel, *The Inferno* is, I suppose, to Dante's epic of the same name. Not that I've actually read the thing, you understand. And comprising as it does three volumes of rather murky medieval Italian verse, only a nutter would start looking in it for help with an adventure like this.

Anyway, that traditional guide to the Underworld, Virgil, acts as a sort of Thorin except that he does actually lead the way sometimes and mercifully never once sits down and starts singing about gold. Meanwhile, you descend into the several circles of Hell, beat off harpies, lob bricks at Cerberus the three-headed dog, wade through foetid swamps and crawl across windswept plains. All very gloomy but, as far as it goes, pretty entertaining.

The trouble is, as with a lot of adventures these days, the problems you're presented with seem to be either pathetically simple or so subtle you don't even guess there's something there to be solved. Whatever, despite having descended to the fifth circle a few times, I still can't work out how I've got past Minos in the Hall of Judgement (an early obstacle) each time. Seems if you just hang around long enough he lets you through.

Otherwise, a graphic adventure with a smallish vocabulary that's neither duff nor particularly revolutionary. And if I can't work out how to get into the devilish Castle Of Dis . . . — **D.R.**

From: RICHARD SHEPHERD SOFTWARE
Format: cassette
Price: £6.50
Graphics: KK
Playability: K½
Addictiveness: KK

CHICKEN RUN
Dragon 32

K



With a single joystick and without a safety net I shall now be a hen, lay eggs, avoid a fox, eat food and open two sets of trapdoors so that eggs are collected and food replenished. 'Huh, child's play!', I hear you mutter and you're probably right 'cos I couldn't do it. But then I'm chicken.

The hen runs around five levels, each with a fox-hole, a shelf for egg-laying and a food tray. An energy scale shows the hen's physical state. If it reaches zero then a life is lost. Being caught by the fox is similarly fatal. Laying eggs is the name of the game. The farmer collects an egg, as long as the trapdoor, which you control, is put in the right place. He then delivers it to the other side of the screen . . . slowly. The farmer also replenishes food trays by collecting corn from the lowest level via the trapdoor and depositing it via another trapdoor, again done at breakneck crawl.

Nine levels of play move everything at various speeds but it's all relative. The farmer can only do one thing at a time while you cluck about watching your energy diminish. Lay an egg too soon and it hatches into a chick (spelt 'chic' throughout the instructions — and it's not!) which then pinches some food. So tedious. Plenty to watch but you can't get on with the game.

The graphics are representative and the animation more of a brave attempt than an achievement. This program has colour, movement and music but lacks thrills, spills and tension. It just gave me the bird and that's no yolk. — **T.S.**

From: IMP-SOFT
Format: cassette
Price: £7.95
Graphics: K
Playability: K
Addictiveness: None

SPECIAL OPERATIONS
Spectrum 48



Another of those Lothlorien strategy things where poor graphics (matchstick men, wobbly bullets, squiggly forests etc) and sluggish responses make play a bore. You handpick a commando team according to individual skills and then set about one of seven increasingly difficult objectives — from locating the enemy compound, through getting stuff out of it, to destroying it altogether.

Play takes place on two screens: one a map of the area, the other for individual locations and combat. Apart from moving, you have only about a dozen options. Frankly, since I discovered *Lords Of Midnight*, strategy games like this just seem pathetic. But then I never liked them much anyway. — D.R.

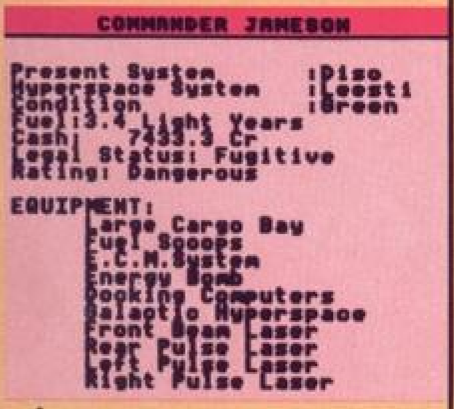
From: LOTHLORIEN
Format: cassette
Price: £5.95
Graphics: nowt
Playability: K
Addictiveness: nowt



YOU BET YOUR ASTEROIDS

And lose, most probably, but boy! is it ever engrossing. Acornsoft's Elite has everything, swears a goggle-eyed KIM ALDIS.

WHEN *Aviator* burst forth from the darkest depths of Acornsoft a few months ago it shed a radiant glow on a somewhat uninteresting software market and created a stunned aura of admiration of the kind you see around a man who kicks bulls around the area that makes a bull a bull. So when I burst into the Big K offices the other day screaming 'IT'S BETTER, IT'S BETTER' I thought it might provoke some kind of reaction. It did. 'Don't be stupid', someone muttered and a large box of last month's issues hit me squarely between the eyes. This was not the kind of reception I expected so I grabbed a nearby head firmly by the ears, dragged it over to the nearest BBC and loaded the game. As I started showing him how to play, the glazed, overworked look gradually faded from his eyes turning to that of the hardened games freak who knows paradise when he sees it. He gave a hoarse scream, forced me out of the seat and took the controls. By this time a few of the others had started to show interest and were drifting slowly in our direction. Before long a full scale fight had developed for a crack at this most wondrous of beasts. It looked as though that was the last I

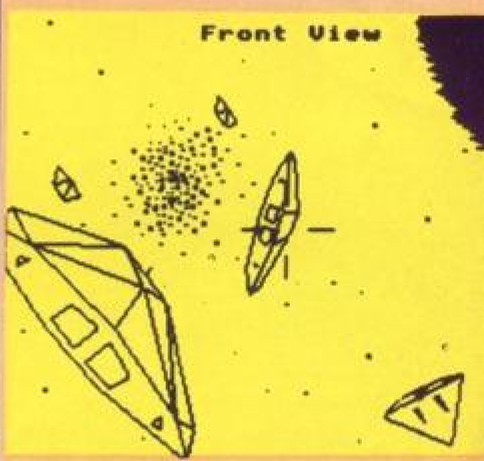


was going to see of *Elite* for some time.

And it really is that good. Vast and highly complicated, it's a sort of space arcade/-action/adventure/strategy game where you roam the galaxies earning a dangerous living trading between the planets, avoiding pirates and hostile aliens and behaving yourself — or not — when the local law come sniffing at your tail.

As the game, or should I say epic, begins you find yourself safely docked in an orbiting docking station above the planet Disco. Inspecting your ship you find it to be a Cobra Mk III trading/combat craft, equipped with a front-firing pulse laser and a twenty-tonne cargo hold. You check the market prices and decide to fill your hold with low priced food. There's no way of knowing for sure but there's a pretty good chance of selling it for a profit on Leesti. With a quick glance to make sure everything is OK you launch the Cobra and set hyperdrive co-ordinates for Leesti, a small, light industrial settlement a few light years away. Within minutes the hyperdrive cuts in and before long your viewscreens show Leesti not far away. You open up to full power, life is hard enough scratching a living on the spaceways without losing half your cargo to pirates, and the planet looms closer. Just as you're approaching the safety of local space a blip appears on the long range scanner, followed by another, then another until there are five. They close in fast and suddenly all hell breaks loose. You swerve to meet them, firing rapidly and manage to pick one off. Another soon goes down to a homing missile but the rest are too much. Your only chance is to run for it. You swing round to face Leesti and after what seems like hours of endless dodging and weaving, your control panel indicates that you are within the defensive screen of Leesti's space station. Your energy banks may be heavily drained but at least you've made it and maybe your cargo will fetch enough for that beam laser you've always been promising yourself. If that last episode was anything to go by you were going to need it.

So goes a typical session at the controls of *Elite*. The action scenes take place in real time — very real — line graphics, similar to those which made *Aviator* so popular, and believe me it's hectic. Pirates are only one of many hazards facing you in this universe. If you think you can make a fast buck by



running contraband, slaves or narcotics, then watch out for the local law. They take none too kindly to lippy traders trying to make fools of them and they show it. Once they're on your tail you'll never shut them off. On top of this there are the Thargoids, virtually indestructible, invariably nasty.

It really is unlikely that you've ever seen a game of this kind of scope, probably as close to a genuine simulation as there is ever likely to be. A few days ago if anyone had asked me if anything like this was possible he probably would have received a sharp clout to the base of the neck for asking inane questions, but now? Who knows, anything is possible. Whatever happens, this is a classic — in the genuine sense where classic means Forever.

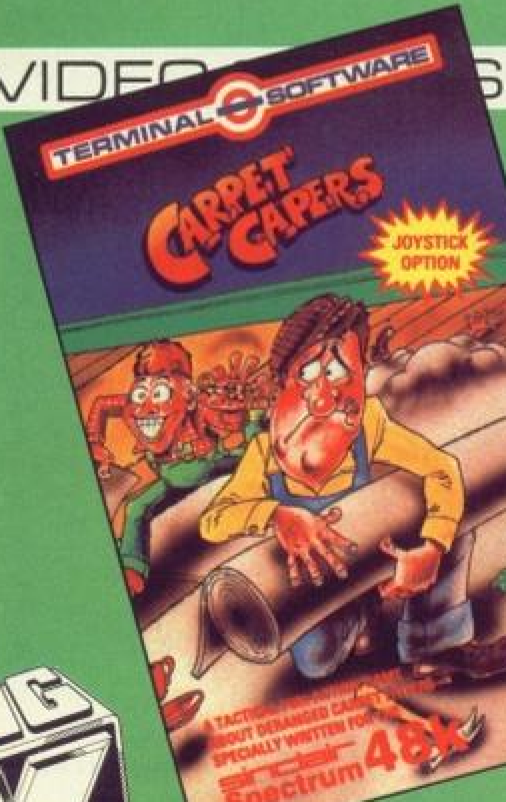
Reviewer Impressed By Unexpected Humility of Software Genius

A FEW phone calls put Big K in touch with David Baden, co-author of Elite. *David and his partner, Ian Bell, had spent the past year coding before the epic was ready and were now sitting back, basking in the warm glow of praise being showered on the game.*

David Baden, it turns out, is a social sciences student and Ian Bell studies maths, so Elite *was written largely in spare time. 'It's just a hobby really', we were told. Some hobby. And what made him write it? 'It started off as a combat game'.*

Neither of them have got any further than a 'competent' status, which still leaves 'dangerous' and 'deadly' to go before they reach 'Elite', the ultimate accolade. If the creators can only get that far what chance do us ordinary mortals stand? 'There's a rumour floating around that someone's reached 'deadly' but I'm not sure who'.

Baden was very careful to point out that Elite *has nothing to do with* Aviator, *in spite of the obvious visual similarities — which is understandable considering the amount of work they've put into it. Let's hope the keep it up.*



K K ½

CARPET CAPERS
Spectrum 48K

Take a collection of clearly quite deranged carpet layers leaving multi-coloured trails behind them, add a selection of objects to be picked up as you move from room to room and the overall effect of *Carpet Capers* is a bit like *Painter* meets *Jet Set Willy*.

Sounds good? It is — eventually.

Initially, though, it's just bloody irritating. The carpet layer figures are horrible, flickering stick men, which take a bit of getting used to. And then there's your apprentice, who buzzes around you like a blue-arsed fly, nabbing objects that you're after and often making it impossible to tell exactly where you are. Result: until you get the hang of it, utter confusion.

Once you get going, however, it's completely absorbing. I looked at my watch after a couple of games and was astonished to find that I'd been at it for an hour and a half. The trick is to get the objects you need to keep you going, get a key to let you into the next room, nobble as many other carpetfitters as possible and lay a quota of carpet without blocking yourself in a corner.

All in all, over nine screens just enough tricks to get the old adrenal gland buzzing nicely.

It makes really nifty patterns, too. — **D.R.**

From: TERMINAL SOFTWARE
Format: cassette
Price: £5.95
Graphics: KK
Playability: KK
Addictiveness: KKK

BEAM RIDER
Dragon 32

K

Let's see . . . I'm the beamer (looks like a yellow splodge to me) and those closely packed little blue boxes are blocks of nuclear waste. 'Clear as many boards as possible by running over blocks with your beamer before being hit three times.' Okay.

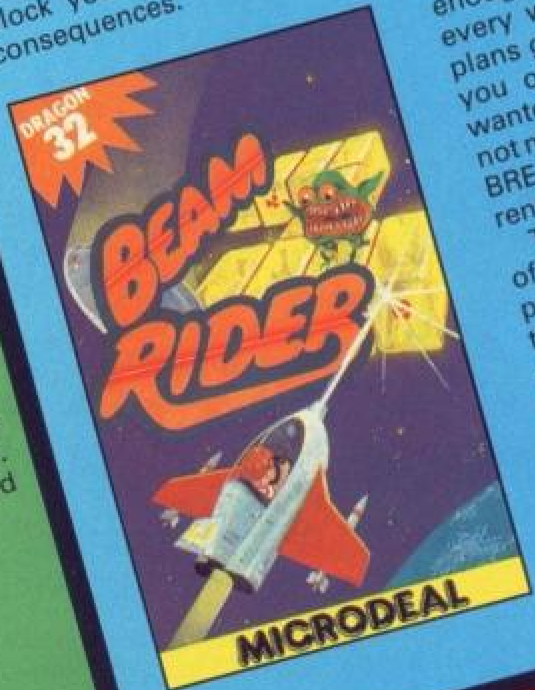
Using the joystick you move the beamer/yellow splodge horizontally or vertically as required obliterating the nearest block, whether it be adjacent or across a gap. Therefore, you flit madly around the screen while red bugs amble about trying to block your path, with fatal consequences.

A circle with a mind of its own bounces sedately around the screen rebounding from blue blocks which temporarily change colour. By crossing these the beamer becomes immune to bugs for a while. Colliding with the circle or bugs results in a pretty routine whereby the beamer fragments, the bits cascading to the bottom of the screen. It's almost a pleasure to get zonked, surely a weakness in any game.

Having developed a strategy for guaranteed success (yet another!) joystick control (why not a keyboard option?) is not precise enough to respond to your every whim. Thus, all your plans go up the spout when you obliterate a block you wanted to save. Although not mentioned you can press BREAK to abandon the current game in disgust.

There are several patterns of boards to clear as one progresses but somehow the whole concept is uninspiring. — **T.S.**

From: D & D SOFTWARE
Format: cassette
Price: £8.00
Graphics: K
Playability: KK
Addictiveness: K



ELECTRON INVADERS
ELECTRON

K K



New owners begin here. Old-timers pass on, there's plenty more for you in these pages.

Listen carefully. In the Beginning there was *Space Invaders*. It spread across the planet and was found to be pretty hot stuff. Yea verily, it was written that, henceforth, every new computer would have its own version of this venerable collection of bytes.

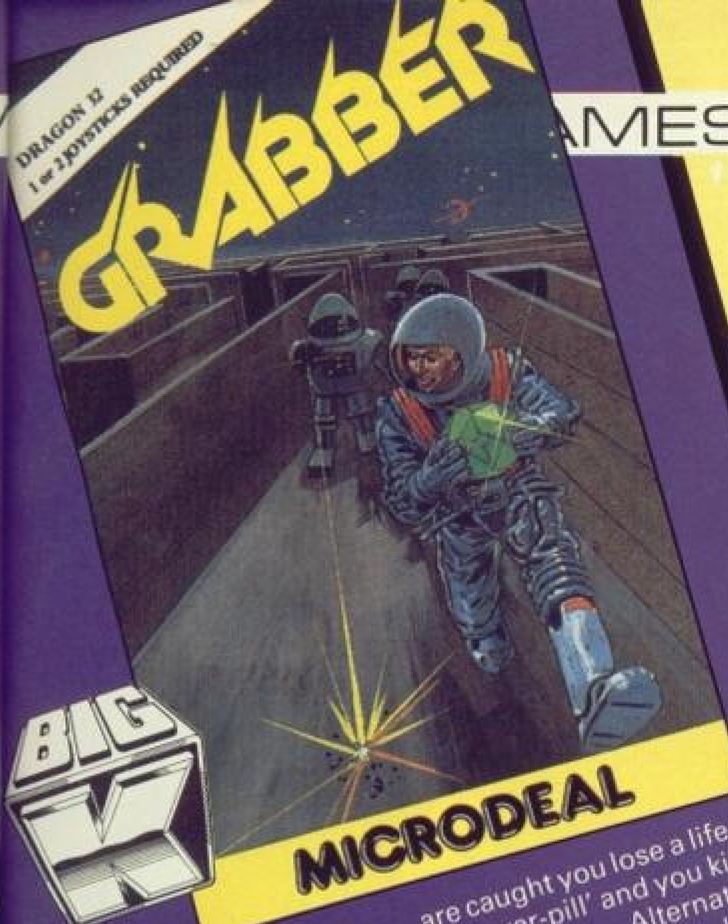
Thus we come to *Electron Invaders*. All I can say is thank heavens this was done by Micro Power. The sheer professionalism of this Beeb-orientated company has been commented on before. The high quality presentation of all its games can make even an 'ancient' offering like this look good on the screen. Electron owners can feel fortunate that they've got a first class Invaders clone here.

All the familiar elements are faithfully reproduced; phalanx upon phalanx of aliens, the mothership, sliding laser base, etc. Interesting touches include larger bunkers and bombs which explode in mid-air spraying shrapnel everywhere.

Sound, graphics and colour are excellent. Simple left, right and fire controls make the action fast. Options include 1 or 2 players and sound on or off.

A recommended intro to the world of serious alien bashing for all Electron owners with that special merciless streak — **D.R.**

Maker: MICRO POWER
Machine: ELECTRON
Format: cassette
Price: £7.95
Graphics: KK
Playability: KK
Addictiveness: KK
Overall: KK



K

GRABBER
Dragon 32

A review for people who don't like reviews: Don't buy this. For those who desire details, read on.

Grabber is a poor relation of the Pac-family. A novel idea presents you with a split-screen featuring two mazes ('maze' is a generous term for these ultra-simple layouts). There are four treasures and two 'power-pills' in each maze and also four centre boxes, one for each treasure. Using the grabber you move around a maze and, collecting them one by one, return each treasure to an empty box.

Monsters materialise in any box and chase you, also taking any treasures from the boxes if possible. If you are caught you lose a life, get a 'power-pill' and you kill the monsters. Alternatively, pressing the fire button transfers you to the other maze to follow the same process. You can switch mazes when you like to avoid trouble although the monsters in both mazes continue undoing your efforts whether you are there or not. Successfully placing all eight treasures in the boxes moves you to a different pair of mazes.

Good idea isn't it? Unfortunately, the documentation is inaccurate, the graphics pathetic, the joystick response suspect and the music awful. Ho hum! —**T.S.**

From: TOM MIX SOFTWARE
Format: cassette
Price: £8.00
Graphics: It has
Playability: K
Addictiveness: Zzzz!

K K

BUZZARD BAIT
Dragon 32

Dangle a dongle and thwart a thief! This program, packaged in an awful outside box, comes complete with a little black wotsit which must be plugged into a joystick port before the cassette will load. Tapes won't load without a dongle and there's only one dongle per purchase. 'Nuff said.

Buzzard Bait is a Dragon version of the arcade game, *Joust*. Mounted on your trusty joystick-controlled ostrich, lance at the ready and four lives at your disposal, you fly forth to do battle with thine foe.

The fire button controls flight while 'gravity' hinders it. Clouds provide strategic rest points and obstacles to movement and a built-in rebound effect can have you bouncing around all over the screen if you're not careful . . . even if you are careful actually. The opposition consists of several foes whose numbers increase as you progress. They are despatched by colliding with them, ensuring that you are at the greater altitude. Otherwise you are dismounted and your reincarnation appears on a cloud (not a harp in sight). Dismount an opponent and an egg bounces away, only to hatch into a further foe if you don't 'collect' it first. Take too long to clear a 'wave' and a pterodactyl appears to attack you with vicious and fatal swoops. Difficulty increases automatically by the clouds and land disintegrating and the appearance of a monstrous hand to pluck you from the skies should you fly too near.

This game shows what the Dragon can do. It leaves most other software in the shade. Control response is excellent while the graphics, animation and sound make for an exciting and fun game. The two-player simultaneous play option is a rare treat but the price is a bitter pill. —**T.S.**

From: TOM MIX SOFTWARE
Format: cassette
Price: £9.95
Graphics: KK
Playability: KKK
Addictiveness: KKK



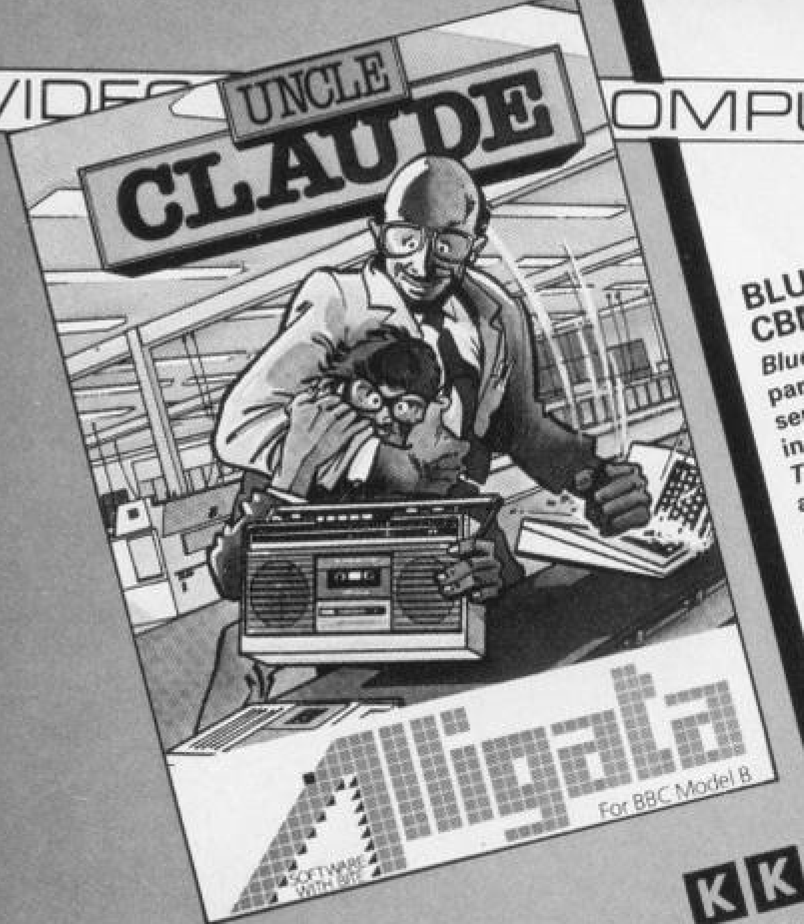

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UNCLE CLAUDE
BBC

KK

Ignore the cover . . . this is quite a good game. You control 'Micro Micky' who is on the run from "Uncle Claude" (who looks remarkably like Sir Claude, that well known used car salesman). This enigmatic figure fires Spectrums at the hapless Mick, who can retaliate only by shunting strange blocks that litter the screen into him.

A conveyor sits at the bottom of the screen, moving from right to left. You must shunt down all the blocks down to the conveyor belt, where they disappear off-screen. Once all the blocks are gone, a key appears. Roll over the key to hit the next level.

Weird custard pie bonuses appear, BBC's cruise downward at intervals and other obstacles appear at later levels, including a mobile barrier between you and the conveyor belt. It's refreshing to see that the characters change at each level, instead of the same old symbol every time.

While lacking the length and depth of something like *Jet Set Willy*, everything is certainly better animated and a lot more fun. Neat. — A.G.

From: ALLIGATA
Format: cassette
Price: £7.95
Graphics: KK
Playability: KKK
Addictiveness: KK

BLUE THUNDER/
CBM 64

K

Blue Thunder was the name of a particularly trashy American series starring a powerful and indestructible helicopter. *Blue Thunder* is also now the name of a game for the '64 starring a helicopter. Here any resemblance ceases.

The cover shows what looks like a still from a multi-megabuck sci-fi film: the reality of the game is very different. The helicopter is a single colour, single sprite blob crowned with what look vaguely like rotors.

The object of the game is to avoid or destroy the enemy defences to get to the nuclear reactor, which looks suspiciously like an over-sized brick barbecue. Fly over the hill next to it to get to a small landing pad to pick up the prisoners from a little hut and return to base, preferably in one piece.

Fuel is limited, and so is the game: the panel (one 6-year-old, one 84-year-old, two dogs and a hamster) gave mixed reactions to this, but all were bored after 15 minutes of gameplay. — D.R.

From: RICHARD WILCOX SOFTWARE
Format: cassette
Price: £6.95
Graphics: KK
Playability: KK
Addictiveness: K

PERSEUS & ANDROMEDA/
Atari (16K)

K

Leaving aside graphics, there are two basic kinds of adventure games. Either you, the player, are the principal ("You are in a narrow passage with exits to north and south. What next?") or the computer is ("I am in a narrow etc"). *Perseus & Andromeda* belongs to the second group, sometimes known as 'puppet' games as you control rather than role-play the hero. Personally I can't be doing with them. With this one, so far from generating my normal two o'clock in the morning obsessiveness (I'm going to crack this if it kills me), I found myself totally uninterested in the problem of how to get beyond the first eight locations.

This is *Mysterious Adventure No. 8*, so presumably this kind of thing appeals to enough people to keep Channel 8 in business, even if it seems pretty old hat to me. To those people I can only say that the original story was a cracker, so the game is probabl up to the maker's par. — J.C.

From: CHANNEL 8 SOFTWARE
Format: cassette
Price: £9.95
Graphics: None
Playability: K
Addictiveness: K



HYPERBLAST/
Atari (32K)

KK

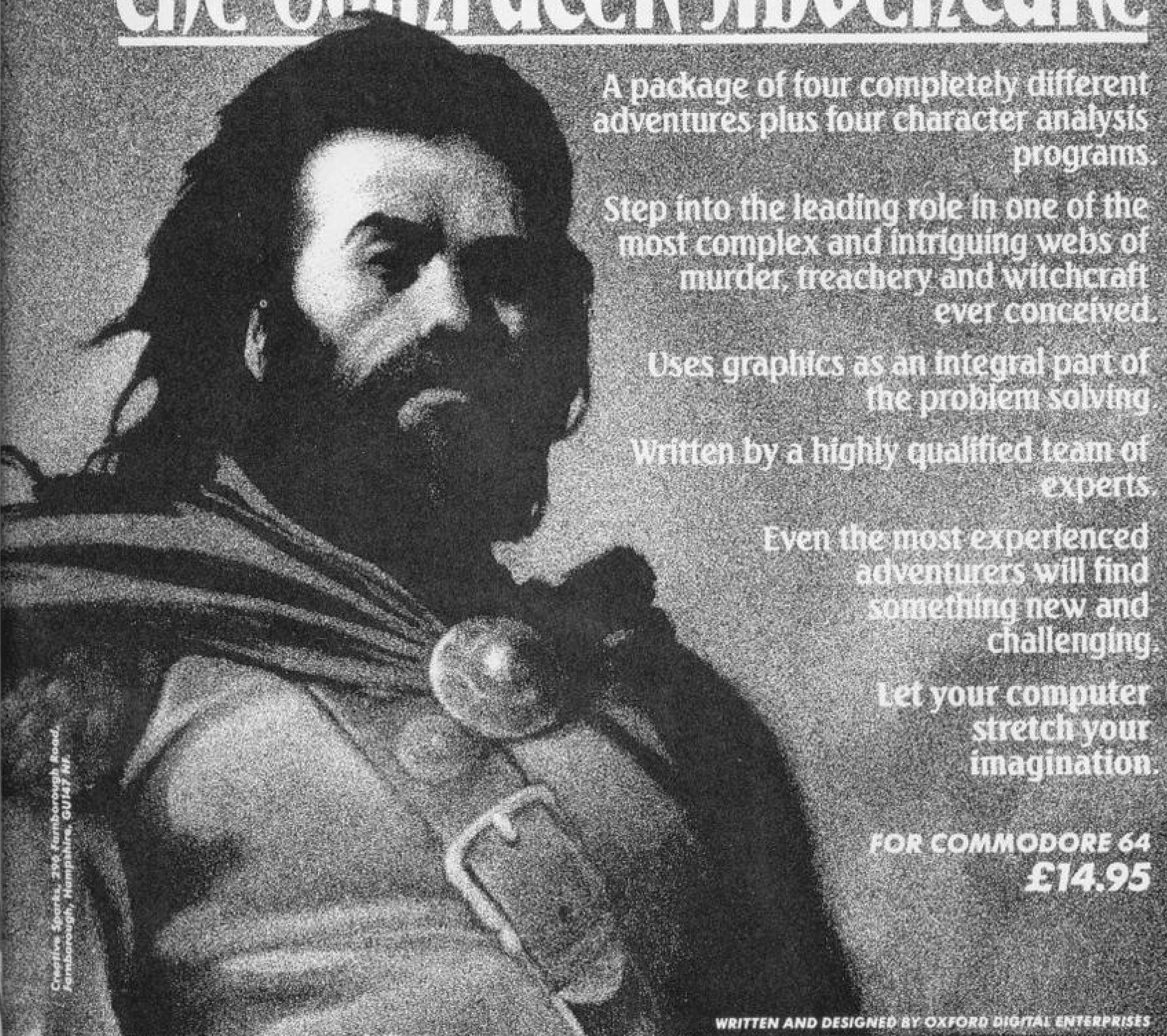
I dunno, maybe I'm too goal orientated, but taking on wave after wave of 'creatures' (Krunks? Xillicks? Zoomerangs?) seems about as interesting as train spotting. Bang, bang, bang goes your Space Cannon. Ding, ding, ding go the creatures. The cannon, which slides back and forth at ground level, has three missiles, the centre one firing first, followed by the wings. When you hit one of the creatures circling rather aimlessly above you, it drops a flurry of missiles and if you don't get out from under, you lose one of your five lives. Missiles also come your way in a rather off-hand fashion anyway. Rather usefully (for reviewers at least) there's a demo mode, so you can watch the whole thing cycle through its paces.

I discovered one sneaky technique, opening up just as the creatures boiled out of thin air, or hyperspace or whatever, which often produced a gratifying, if occasionally lethal, rain of debris, thinning the swine out straight away. Big mistake is to get caught in a corner.

Standard arcade shoot-em-up stuff but well translated with goodish graphics and sound effects. Worth a look if you're into *Defender* and the like. — J.C.

From: ENGLISH SOFTWARE
Format: cassette/disc
Price: £9.95
Graphics: KK
Playability: KK
Addictiveness: Pass

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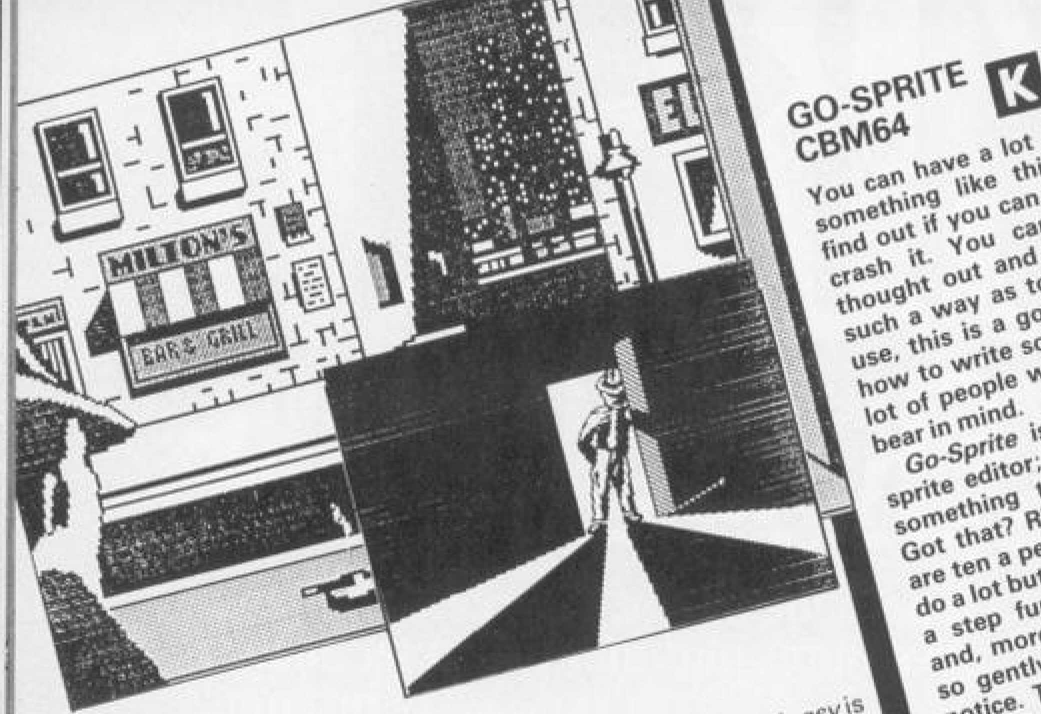
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MUGSY
Spectrum 48K

K

Despite having been foisted upon us by a mob of spat-spittin' Rent-a-Cagneys, Melbourne House's controversial gangster fest has lain largely untouched by the dodgy denizens of the BIG K office. Not surprising perhaps when you consider the astonishing inanity of this well-cloaked simulation.

As Mugsy, a two-bit hood in an eight-bit world, you must take control of the Chicago rackets. This is achieved largely by squeezing out rival gangs and oiling the paws of the local precinct. As your stash of cash grows your infamy spreads and Big Rocco and the boys move in on your operation, regardless of bribes. If he fails once he'll quickly try again. He's certainly not thin-skinned. It's all exceptionally repetitive.

Only the presentation of *Mugsy* is of note. Cleverly crafted as a video comic it features some extraordinary graphics and a nice line in dialogue, consequently the initial sense of atmosphere is superb. You can almost smell the aroma of mafiosa pasta as you wander along the wharf. Unfortunately prolonged play results in brain seizure. The game fails to live up to its early promise. Perhaps Melbourne House can make amends with a more engrossing sequel? It would be a shame to let such visual flair go to waste. — **S.K.**

From: MELBOURNE HOUSE
Format: cassette
Price: £6.95
Graphics: KKK
Playability: K
Addictiveness: Nope

GO-SPRITE
CBM64

KKK

You can have a lot of fun with something like this trying to find out if you can irretrievably crash it. You can't. Carefully thought out and structured in such a way as to be simple to use, this is a good example of how to write software which a lot of people would do well to bear in mind.

Go-Sprite is a sophisticated sprite editor; a sprite editor is something that edits sprites. Got that? Right. Sprite editors are ten a penny and most don't do a lot but *Go-Sprite* takes you a step further into animation and, more importantly, does it so gently you might not even notice. The program goes to a great deal of trouble to be very user-friendly, making extensive use of icons — a trendy word for pictures.

The first screen is the draw screen where all the creating and editing of sprites are done. This is fairly standard stuff, a large grid of squares to draw your sprite on and a sprite-sized display in the corner plus various symbols for inverting, shrinking and stretching the sprite. The operation is very simple, hit an icon with the cursor and the appropriate function comes into play. I picked up the nearest cursor and hurled it at an icon. Small pieces of screen spread themselves all over the room. No *Coronation Street* tonight.

Luckily I had another screen tucked away somewhere so after making a few spaceships I moved on to the next screen. This is where all the copying and overlaying is done. Sprites can be copied over into each other and you can pile sprites on top of each other using a priority stack to control how they appear on the screen.

When you've finished making sprites you can move across to the animation screen where sprites are dumped onto a film strip together with screen coordinates so they can be animated about the screen.

After all this *Go-Sprite* lets you SAVE all the sprite data and animation coordinates to tape or disc in BASIC data statements and arrays so it's very easy to make good use of the program and, more importantly, it takes a lot of the trouble out of programming in Commodore's hideous BASIC. Very nice. — **K.A.**

From: MIRRORSOFT
Format: cassette
Price: £9.95
Graphics: KKK
Playability: N/A
Addictiveness: N/A

MASTER MARINER
Spectrum 48K

KK

In which you captain the good ship 'Titan Trader' and attempt, by buying goods at one port and selling them at another around the coast of Britain, to become a millionaire. As in real life, that's a little difficult. Especially as you've no idea what the selling price is going to be until you've arrived at your destination and clocked the menu and options thereabouts.

Marred by some of the most mind-numbingly sluggish graphic sequences in the history of computer gaming and made damn near impossible in the early stages by a series of random and improbable disasters that hit you every single time you set sail (pirates, sea mists, customs officials who always know when you've got arms or bullion on board), it's actually pretty entertaining in the buy/sell stages. 'Coals To Newcastle' would have been a much better title. — **D.R.**

From: ATLANTIS
Format: cassette
Price: £1.99
Graphics: so-slow
Playability: KKK
Addictiveness: KK

THE HOUSE OF USHER
CBM64

KK

Here we have one of those super-miniscule, single pixel character beasts. Even with a magnifying glass the size of a dinner plate you need to pop your eyes out of your sockets to see what's going on.

On the other hand there's certainly a lot going on. A total of ten screens to get through, all difficult enough to tie you up like the Gordian knot.

All the pages are of the climb ladders and run along walls variety, the whole lot combining to give just about every variety of walls and ladders game ever conceived. And they're all hard. Very hard. One or two gave the distinct appearance of being totally unsolvable.

After a short walk up the front drive the game starts proper. Climb up a ladder, hop off a platform and you have immediate access to nine doors, each leading to a different room. There's no space here to give a concise rundown on all the rooms but suffice it to say that you have to negotiate holes, beasts, moving platforms and cannon fire. Once all the rooms have been safely negotiated the tenth room becomes available — of which there's about as much chance of mastering as of playing pool on the Moon.

Definitely one for the numero uno gamestar. The kind of guy who does the Hampton Court maze, plays grandmaster chess in his head and tap dances. All at the same time. — **K.A.**

From: ANIROG
Format: cassette
Price: £6.95
Graphics: K
Playability: KK
Addictiveness: KK

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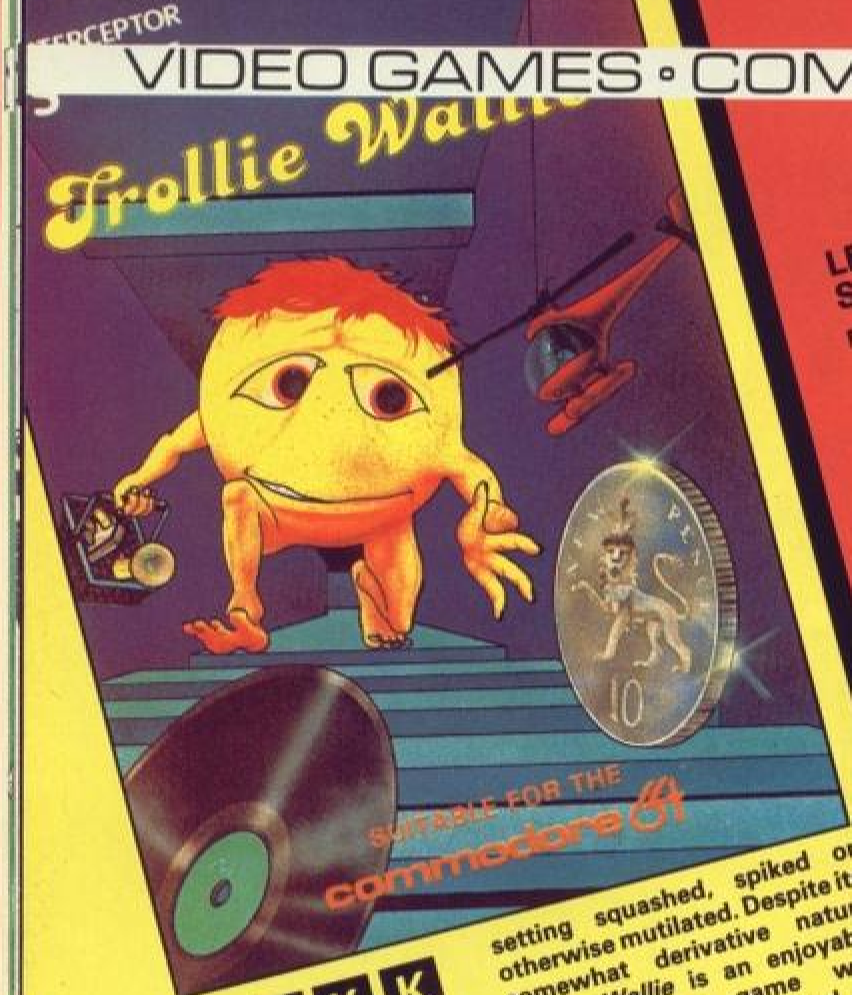
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KKK

TROLLIE WALLIE/ CBM64

The heroic saga of Wallie continues. In this third game featuring the small unlovable blob, Wallie must set round a supermarket picking up the shopping that he has been sent for. The supermarket in this game does not have the usual shelves of dogfood and Domestos: disappearing floors, slides and moving beams are all present to trap unwary Wallies. The other shoppers are as weird a bunch as in any Tesco's on a Saturday morning. Anyone who has played *Son of Blagger* by Alligata, will find the scenario familiar. For those at this point saying 'Son of Who?', the object is to make your way around the screen, which scrolls very smoothly in all directions, getting across the disappearing floors without falling through, avoiding the nasties and not setting squashed, spiked or otherwise mutilated. Despite its somewhat derivative nature *Trollie Wallie* is an enjoyable and addictive game with graphics of the standard we have come to expect from Interceptor.

The background tunes are mostly by Jean Michel Jarre, the person given credit on the cover for the music has merely rearranged them for the '64. There is the usual Interceptor humour in the game; on parts of walls scroll messages containing snippets of totally meaningless disinformation about the authors. The game requires a joystick, but then what self-respecting '64 gamer hasn't got one? —**D.G.**

From: INTERCEPTOR SOFTWARE
Format: cassette/disc
Price: £7.00 cassette/£9.00 disc
Graphics: KKK
Playability: KKK
Addictiveness: KKK

LES FLICS Spectrum 48K

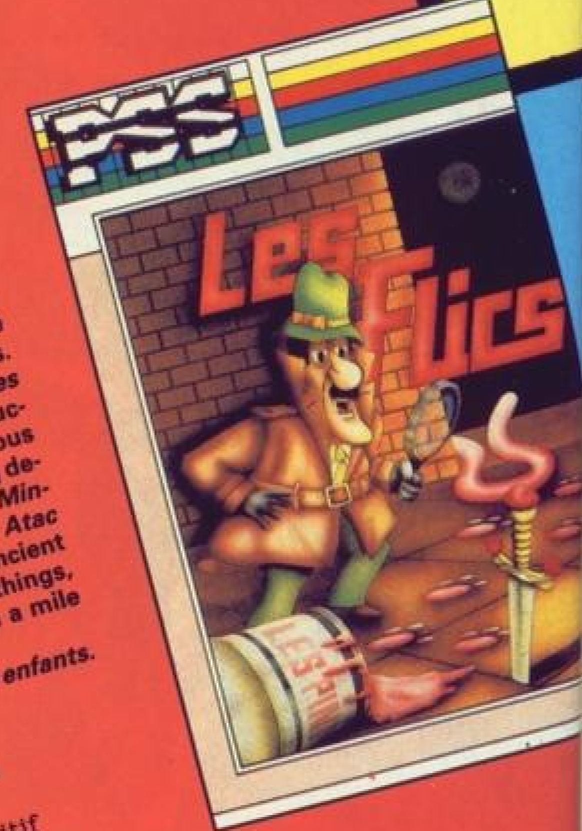
Dressed up as an "arcade adventure" in the style of the Pink Panther ("'Allo, ahm Unspecteur Cleuseau") films, but actually just living proof that a whole can be less than the sum of its parts.

With joystick or cursor keys, you buzz a car a round a maze and enter different buildings. Within each, you avoid *les vieux bill* and ascend a structure while collecting various *objets*. Thus it is to varying degrees derivative of *Manic Miner*, *Donkey Kong*, *Atic Atac* and one of those ancient arcade car-in-a-maze things, without coming within a mile of any of them.

Tres ennuyant, mes enfants.

—**D.R.**

From: PSS
Format: cassette
Price: £6.95
Graphics: Primitif
Playability: gauche
Addictiveness: rien



KK

GRAB-IT CBM64

Grab-It ... Ouch! Someone around here took that literally. Someone around here is going to have their teeth extracted with a pickaxe.

What we have is a nice little game based around a nice simple idea. At the top of the screen is a small spaceship from which comes a grabber — geddit — controlled by a sharp-witted and highly skilled person who places himself at the keyboard. At the bottom are a selection of objects that have to be transferred to the spaceship by means of the grabber. In the meantime various flying objects bounce around the screen which cause the grabber to disappear in a puff of smoke should the sharp-witted and highly alert person at the keyboard fail to avoid them.

On the first screen you only have to avoid a solitary balloon but as you move up through the screen this is joined by kites and seagulls until no less than six of the beasts are bouncing around the screen like hyperactive tennis balls.

It's like a sort of reverse tennis where you have to avoid the bouncing bits instead of hitting them. Quite simple but fun nonetheless. —**K.A.**

From: VOYAGER
Format: cassette
Price: £
Graphics: KK
Playability: KK
Addictiveness: KK

KK

ZAXXON/Atari (16/32K)

Though the box art is extremely misleading — it doesn't look anything like that good! — this is nonetheless a very adequate implementation of the classic arcade game. You get the first space fortress, outer space, the second fortress and the Zaxxon Robot encounter, seen from the usual 45° angle. Get through and you go back for another, harder pass.

The differences between the 16K and 32K versions are that the former has no pause facility, doesn't have base missiles in the first fortress or altitude control in outer space, and you have to destroy the Zaxxon Robot itself, rather than its missile. Not a whole lot else to say, really. I mean you must know more or less what to expect from Zaxxon by now, surely? —**J.C.**

From: SEGA (US GOLD)
Format: cassette/disc
Price: 14.95
Graphics: KK
Playability: KK
Addictiveness: KK



KKK

SOLO FLIGHT
CBM64

U.S. Gold software has flooded on to software retailers' shelves in an attempt to bring 'the best of U.S. games' to a wider market in this country.

Much of it would be more realistically described as 'U.S. Old'. *Solo Flight* is an exception. This is a realistic flight simulator in which you deliver the U.S. Mail.

The graphics are good, but not as good as the screen shot on the back cover which looks to be from the Atari version! Sound, however, is rather feeble, the engine chugs happily as you rev it up but other noises are noticeably absent.

You control a light aircraft which is shown on the screen, complete with shadow at low altitudes. The airports are shown as outline shapes only but the perspective shift as you approach or take off is quite convincing. The awesome looking mountains on the front cover are very disappointing, being represented as blob-and-line drawings on the screen. When you crash or complete a mail run your progress is shown as a line plotted on a map of the territory you cover.

An instrument panel features altimeter and engine speed dials and various fuel, heading, pitch and climb rate indicators.

After about two hours' play it was possible to take off and land every time on the easier levels, more fun was then derived from taking the plane to its ceiling, increasing air speed to maximum and diving at full power to a satisfyingly fatal crash. — **D.R.**

Maker: MICROPROSE (U.S. GOLD)
Other versions: Atari
Format: cassette/disc
Price: £9.95 (cassette)/ £12.95 (disc)
Graphics: KKK
Playability: KKK
Addictiveness: KK

THE HOUSE
Spectrum 48K

A text-only adventure composed with the Quill system and, apart from the odd diversion crafted by chums for private amusement, the first such I've played. And what a disappointment. A few issues back after developing a nodding acquaintance with The Quill I expressed the heartfelt wish that, with the mechanics made simple, maybe more *imaginative* effort could go into adventure writing. Yet here we have a string of utterly boring cliches: a haunted house, coffins, crucifixes, treasure hidden somewhere, blah, blah, blah. I positively *screamed* with boredom on discovering that the first major problem was finding the key to fit the front door.

Add this to an inexcusable (with The Quill) lack of synonyms in the vocabulary and a host of stupid red herrings and the result is quite simply infuriating. It remains only to note that whosoever first conquers this thing stands to win some kind of cash prize. If they can get through it without falling asleep in the first five minutes, they'll have deserved it. — **D.R.**

From: CELYN JONES SOFTWARE
Format: cassette
Price: £5.50
Graphics: K
Playability: None
Addictiveness: None

KK

DAN STRIKES BACK
Atari (16K)

The story in Simon Hunt's one player, joystick operated sequel to *Diamonds* is that Brian the Blob has stolen the Great Diamond and stashed it in "the deepest vault". In other words, your little person has to penetrate six maze levels and then get out again. Brian chases you relentlessly while various hieroglyphic nasties pass up or down on seemingly random courses. To get from one level to another you have to clear each level of mushrooms or small diamonds and it gets harder (what else?) as you go down.

Not exactly mould breaking or earth shattering but good fun, with some nice touches. The Level 3 spider's webs are very well done, as is Dan's little ghost when he gets killed. There are times, particularly round the randomly opening and closing doors on two of the levels and places where you can't go up, when you get killed more by bad luck than bad judgement. I think three lives, with no bonuses, is a bit mean, and certainly makes it hard to get into the game. — **J.C.**

From: ENGLISH SOFTWARE
Format: cassette/disc
Price: £9.95
Graphics: KK
Playability: KK
Addictiveness: KK

K

VAGAN ATTACK
Spectrum 48K

Calling Earth . . . come in Starfleet Command. We are hopelessly lost somewhere off the right of the screen. All systems are so badly chewed up that even the Damage Report mechanism just spurts out gibberish. Our engines won't move us. We are floating helplessly in the inky darkness beyond the Galactic Rim. Even, God help us, a suicide attempt with an anti-matter bomb failed to end it all. Will someone, somewhere *please* tell us how to QUIT?

Answer: you can't. Apart from that rather obvious fault (I got lost first move) this is a reasonably sprightly split-screen space strategy game in which we, with two kinds of drive, three kinds of weapon and several varieties of scanner, buzz about the galaxy putting the Vagans in their place. Not bad but nothing special. — **D.R.**

From: ATLANTIS
Format: cassette
Price: £1.99
Graphics: K
Playability: K
Addictiveness: K





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"Tracking" may help you choose the right path and decipher prints or tracks of creatures in the wild.

ZIP CODE

KEEPING IT IN THE ATARI FAMILY

MIKE GOLD probes the new regime at Atari.

YOU KNOW, if Atari ever goes out of business, we micro-watchers won't have much to talk about.

The 7800 video game unit promoted more yawns than sales, Lucasfilms' transition from The Force to The Chip proved to be in vain, and Warner Communications got sick of running a half-billion dollar loss. They sold the home division — everything but the arcade games and the mystical (and thus far mythical) AtariTel units — to Jack Tramiel.

TRAMIEL-STYLE

The deal is surprisingly simple: Warners virtually gave Tramiel Atari for a fistful of I.O.U.s and stock options. If Atari turns the corner — and it's one hell of a corner — Warners will make some real money. If not, well, it was dying anyway.

Tramiel was the founder of and the power behind Commodore. He's still the founder, but earlier this year he was unceremoniously dumped amid a slew of rumours. Commodore was — and is — extremely successful; the problems were of a more personal nature. Ostensibly, Tramiel wanted to install his sons in positions of authority at Commodore.

To say Atari's new owner runs a tight ship is to imply there's some sort of chain of command. Atari now is the Tramiel family ship: Jack is the company's chairman, his son Sam is president, his son Leonard runs software development, and his son Gary has the unenviable task of collecting unpaid debts. Family arguments now have a direct bearing on unemployment lines.

If the Tramiel family can save Atari, it is with the same know-how and practices that made Commodore a company to beat. The formula is simple: low overheads, foreign production, low prices. Move everything overseas where labor is cheap and unions don't exist, and then buy the raw materials cheaper than anybody else.

They had to build a new type of revolving door the day Jack Tramiel arrived at Atari. He and his sons came in, and nearly everybody else was fired.

Then they moved fast. Atari clamped a tight lid on information — a stunt that worked well for IBM. They killed or tried to kill as much advertising as they could, including the potentially lucrative television campaign Warners had in place during the summer Olympic games. They weren't entirely successful, but they had already made the decision to continue the popular and successful Alan Alda ads for the 800XL, so this expensive and valuable airtime was put to good use.

Tramiel fired the first two shots in his war against his former company. He immediately killed all Atarisoft games for the Commodore 64, and he hired a bunch of his bright-guys from Commodore. It's clear to see who Tramiel sees as the enemy.

Jack Tramiel has a formidable task: Making room in an already crowded market. It's tough to beat IBM at the high-end, and the middle-ground is owned by Apple. Radio Shack/Tandy has a solid foothold in both fields. Commodore had a lock on the under £500 end of the market, but the CBM64 is seen as ancient and the Plus/4 as something only a bit more interesting than Atari's 7800.

NEW BROOM

The 2600 is a dinosaur staring at oblivion, but nobody's sure when the animal will die out. There are between ten and 15 million 2600s still in people's homes, but exactly how many of them are still being used is unknown. So what did Jack Tramiel buy?

He bought the Atari name — still the most recognised name in the home computer field. He bought a large but dying market for 2600 software, and he bought the mildly successful 800XL. Separately, Tramiel bought a ton of disc drives, which he will use on the 800XL or on some new marvel.

THE CHALLENGE

So what is going to happen? A few highly-educated guesses:

(1) The 5200 is dead. Warners killed the hardware; Tramiel will kill the software.

(2) The 7800 might very well be stillborn. If it ever sees the light of day, it will be dumped in the fashion Warners dumped the Atari 1200 (which never made it to the U.K.).

(3) Atari will continue to sell 800XLs and make Atarisoft and 2600 software, at least for the time being. Tramiel has to keep the Atari name alive.

(4) Stock will be dumped at bargain basement prices in an effort to bring cash into the company. The 2600 unit is expected to sell for around £30 by Christmas.

SUPPOSING . . .

(5) Something new and fantastic will be in the stores shortly after the first of the year. Lots of memory and bells and whistles — something that will leave the Commodore 64 in the dust.

And what is Commodore doing? They just purchased Amiga Corporation, a small outfit that is producing a 32-bit micro described by the *Wall Street Journal* as "Macintosh-like" but for one-third the cost.

Jack Tramiel wanted Amigo.

Atari-watching is more fun than ever.

STATESIDE CHATTER

The Coleco Adam still is hanging in there. During the fall months, Coleco is literally trying to give the machines away. The unit retails for $750 (but is sold for much less), and Coleco now is throwing in $100 worth of free software.

During the fall months, Coleco is offering "certain individuals" what amounts to $500 scholarships. These certain individuals must be under 18 years old, they must buy the Adam this fall, and they can't turn 18 until fall of 1985. That leaves one hell of a lot of people.

If these kids enter college, they will receive a cheque for $125 at the end of each school year they complete, up to a maximum of $500.

There appears no truth to the rumour that, if the free software and free tuition help campaigns fail, Coleco will begin shrink-wrapping $100 notes in each Adam box.

One person alone could go with Pitfall Harry into the Lost Caverns... You!



Running on
Commodore 64, Sinclair Spectrum &
MSX System at your usual software store.

Oh Harry. This time he's gone too far.

Somewhere, buried deep in the lost caverns of Machu Pichu, Peru, lies the stolen and, of course, priceless Raj Diamond, along with a hoard of missing gold bars.

Harry's little niece Rhonda and Quickclaw, her cowardly cat, are supposed to be with him, but they strayed away and are lost in the bowels of the caves.

A wealthy university has asked him, while he's cleaning this mess up, to capture an elusive stone-age cave rat.

What fun.

He just has to avoid the occasional poisonous frog.

Oh yes. And the wickedly clawed condors. The electric eels. And a very nasty line in thirsty vampire bats.

So you can see Harry could do with some help.

All you'll have to help you are your wits and some gas-filled balloons to bridge the wider chasms. And you'll be in for the game of your life.

One thing puts Activision Software out on its own. The way you go on running it month after month. And Pitfall II is no exception.

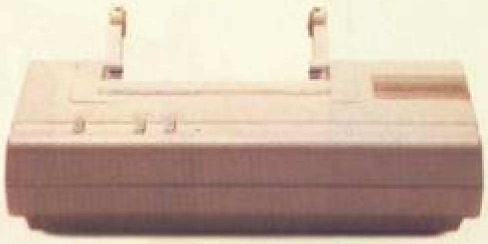
Lose yourself in the world of

ACTIVISION®

Activision Software is available at selected branches of: W.H. SMITH, BOOTS, RUMBELOWS, SPECTRUM and all good computer shops.



3 printers,
A range of daisy wheel and dot matrix printers.
cassette unit,
For program storage and retrieval. For faster sto
commodore
monitor,
Gives really superb reproduction and clarity.
joys
They put the co
a vast range of so
There's something for everyone and for all interests... thought-provoking, amusing, enterta
home,
leisure and practical interests...
GET READY TO READ
MATHEMATICS
edu
pre-school and be
and a 64K
Plus excellent sprite graphics
About the only thing the Commodore 64 doesn't ha



printer plotter,

Plots graphs, draws bar and pie charts. Prints in four colours.



single disk drive,

er storand retrieval of programs. Uses 5¼″ diskettes, and has a very large 170K memory.



stck, paddles,



the conf games directly into your hands... they also improve both speed and accuracy.



ofware (business,

tertainchallenging, and exciting. To cover the essential office and business needs...



lucational, games)

and beyreated with the help and advice of specialists. From shoot 'em up to strategy.

kmemory.

phics amazing music synthesis capabilities.



t hasany serious competition.

TURN PIKE TOAD

```
0 REM WRITTEN FOR BIG-K BY NIGEL SHARP

1 TEXT:GRAB:HIMEM £3400

2 DATA 1,2,1,1,1,1,1,6,1,1,1,1,3,1,1,1,3
,1,5,6

3 RESTORE:FOR A=1 TO 10:READ NO%(A),LE%(
A):NEXT

90 POKE 618,10

95 TI%=2000

96 LI%=3

97 GOSUB 2000

99 RESTORE:FOR A=1 TO 20:READD:NEXT

100 A=46856:REPEAT:READB:POKEA,B:A=A+1:U
NTILB=99

101 :

102 :

103 REM ************ U.D.G'S ******

104 :

105 :

110 DATA 0,0,0,0,0,63,59,4,0,0,15,20,36,
63,63,0,0,0,48,40,36,63,61,

2

120 DATA 0,0,3,5,9,31,23,8,0,0,60,10,9,6
3,63,0,0,0,0,0,0,63,55,8

130 DATA 0,7,4,4,61,63,54,9,0,47,47,47,4
7,63,45,2,0,63,63,63,63,63,

63,0

140 DATA 0,62,62,62,62,62,54,8,0,31,31,3
1,31,31,27,4,0,61,61,61,61,

63,45,16

150 DATA 0,56,8,8,47,63,27,36,2,17,15,3,
3,7,43,25,16,34,60,48,48,56

,53,38

160 DATA0,0,0,4,2,33,16,0,0,0,8,8,4,0,2,
58,0,17,17,16,0,14,10,14,34

,4,0,2,58,18

170 DATA16,18,14,8,46,2,14,0,17,34,42,58
,35,32,4,8,8,0,10,10,40,0,1

6,16,16,0

180 DATA 16,4,34,33,16,0,0,0,99

181 :

182 :

183 REM ****** TRAFFIC STRINGS *****

184 :

185 :

190 FOR A=1 TO 4:READ Y%(A):NEXT:DATA 9,
17,13,21

200 FOR A=1 TO 8:READ VE$(A):NEXT

210 DATA"abc","abc",ghiiij,ghiiiiij,"def
","def",kiiilm,kiiiiilm

220 FOR A=1 TO 10:SP$(A)="":FOR B=1 TO A
:SP$(A)=SP$(A)+"  ":NEXT B,

A

230 FOR A=1 TO 7:CO$(A)=CHR$(A):NEXT

240 FOR A=1 TO 2:REPEAT

250 TR$(A)=TR$(A)+CO$(RND(1)*7+1)+VE$(RN
D(1)*4+1)+SP$(RND(1)*4+1)

260 UNTIL LEN(TR$(A))>50

270 NEXTA:FOR A=3 TO 4:REPEAT

280 TR$(A)=TR$(A)+CO$(RND(1)*7+1)+VE$(RN
D(1)*4+5)+SP$(RND(1)*4+1)

290 UNTIL LEN(TR$(A))>50

300 NEXT:X%=20:Y%=25

301 :

302 :

303 REM ********** SCREEN **********

304 :

305 :

310 POKE £26B,10:CLS:INK 7:POKE 48040,8
```



TURNPIKE TOAD for Oric

```
315 PLOT 1,0,"TIME:":PLOT 0,1,CHR$(2)+"n
o no no"

316 PLOT 0,2,CHR$(2)+"no  no  no"

320 FOR A=1 TO 4:PLOT 1,Y%(A),LEFT$(TR$(
A),38):PLOT 1,Y%(A)+1,LEFT$

(TR$(A),38)

321 A$="
    "

322 PLOT 1,25,A$:PLOT 1,26,A$

325 IF ZZ% THEN PLOT OX%,OY%,"  ":PLOT O
X%,OY%+1,"  ":ZZ%=0

330 NEXT:DOKE £276,TI%:A$=KEY$

331 :

332 :

333 REM ******** MAIN LOOP ********

334 :

335 :

340 REPEAT:KE$=KEY$:IF KE$="" THEN KE%=0
:GOTO 390

350 OX%=X%:OY%=Y%:KE%=ASC(KE$)

360 X%=X%+(KE%=8 AND X%>1)*2-(KE%=9 AND
X%<37)*2

370 Y%=Y%+(KE%=11)*4-(KE%=10ANDY%<25)*4

375 IFSCRN(X%,Y%)>32ORSCRN(X%+1,Y%)>32TH
EN560

380 PLOT OX%,OY%,"  ":PLOT OX%,OY%+1,"
"

390 PLOT X%-1,Y%+1,CHR$(2)+"no":PLOT X%-
1,Y%,CHR$(2)+"no"

400 IF Y%=5 THEN 1000

410 IF KE%<12 AND KE%>7 THEN SOUND 1,100
,0

420 IF KE%<12 AND KE%>7 THEN PLAY 1,0,1,
100

430 :

440 :

450 REM ******** MOVE TRAFFIC ******

460 :

470 :

500 R%=INT(RND(1)*4)+1

510 IF R%>2 THEN 530

520 LE%=LEN(TR$(R%))-2:TR$(R%)=RIGHT$(TR
$(R%),LE%)+LEFT$(TR$(R%),2)
:GOTO 540

530 LE%=LEN(TR$(R%))-2:TR$(R%)=RIGHT$(TR
$(R%),2)+LEFT$(TR$(R%),LE%)

540 PLOT 1,Y%(R%),LEFT$(TR$(R%),38):PLOT
 1,Y%(R%)+1,LEFT$(TR$(R%),3

8)

550 IF DEEK(£276)<TI% THEN  PLOT 6,0,STR
$(INT(DEEK(£276)/100))+" "

555 PLOT 0,0,4:PLOT 6,0,4

560 S1%=SCRN(X%,Y%):S2%=SCRN(X%+1,Y%)

570 UNTIL(S1%<>110ANDS1%<>32)OR(S2%<>32A
NDS2%<>111)ORDEEK(£276)>TI%

575 :

580 :

585 REM *********** SPLAT! *********

590 :

595 :

600 X%=X%-3:A$=CHR$(8)+CHR$(1)

610 PLOT OX%,OY%,"  ":PLOT OX%,OY%+1,"
"

620 PLOT X%,Y%,A$+"pqrs"+CHR$(10):PLOT X
%,Y%+1,A$+"tuvw"+CHR$(10)

630 PLAY 0,1,0,1000:FOR A=31 TO 0 STEP -
1

640 SOUND 4,A,0:NEXT

650 LI%=LI%-1:IF LI%=0 THEN WAIT 200:RUN

670 PLOT 4*LI%+1,1,"  ":PLOT LI%*4+1,2,"
  ":X%=20:Y%=25:ZZ%=1:GOTO

320

680 :

690 :

700 REM ********* OTHER SIDE ******

710 :

720 :

1000 PLAY 1,0,1,5000

1005 SC%=SC%+DEEK(£276)/100

1010 FORA=1TO10:MUSIC1,3,NO%(A),0:PLAY1,
0,1,LE%(A)*500:WAITLE%(A)*7

:NEXT

1050 PLOT 10,0,"SCORE:"+STR$(SC%):PLOT 1
6,0,4

1060 TI%=TI%-100

1070 OX%=X%:OY%=Y%:X%=20:Y%=25

1080 ZZ%=1:GOTO 320

1090 :

1091 :

1092 REM *********** TUNE ************

1093 :

1094 :

2000 RESTORE:FOR A=1 TO 217:READ D$:NEXT
 A

2005 FOR A=1 TO 37

2010 READ N1%,N2%,OC%

2020 IF N1% THEN MUSIC 1,4,N1%,0

2025 MUSIC 2,OC%,N2%,0

2030 IF N1% THEN PLAY 3,0,1,1000 ELSE PL
AY 2,0,1,1000

2040 WAIT 10:NEXT:RETURN

2050 DATA 5,1,1,1,5,1,1,8,1,1,5,1,5,1,1,
1,5,1,1,8,1,1,5,1

2060 DATA 6,1,1,6,5,1,5,12,0,5,3,1,3,10,
0,0,1,1,0,5,1,0,1,1,6,1,1,6

,5,1

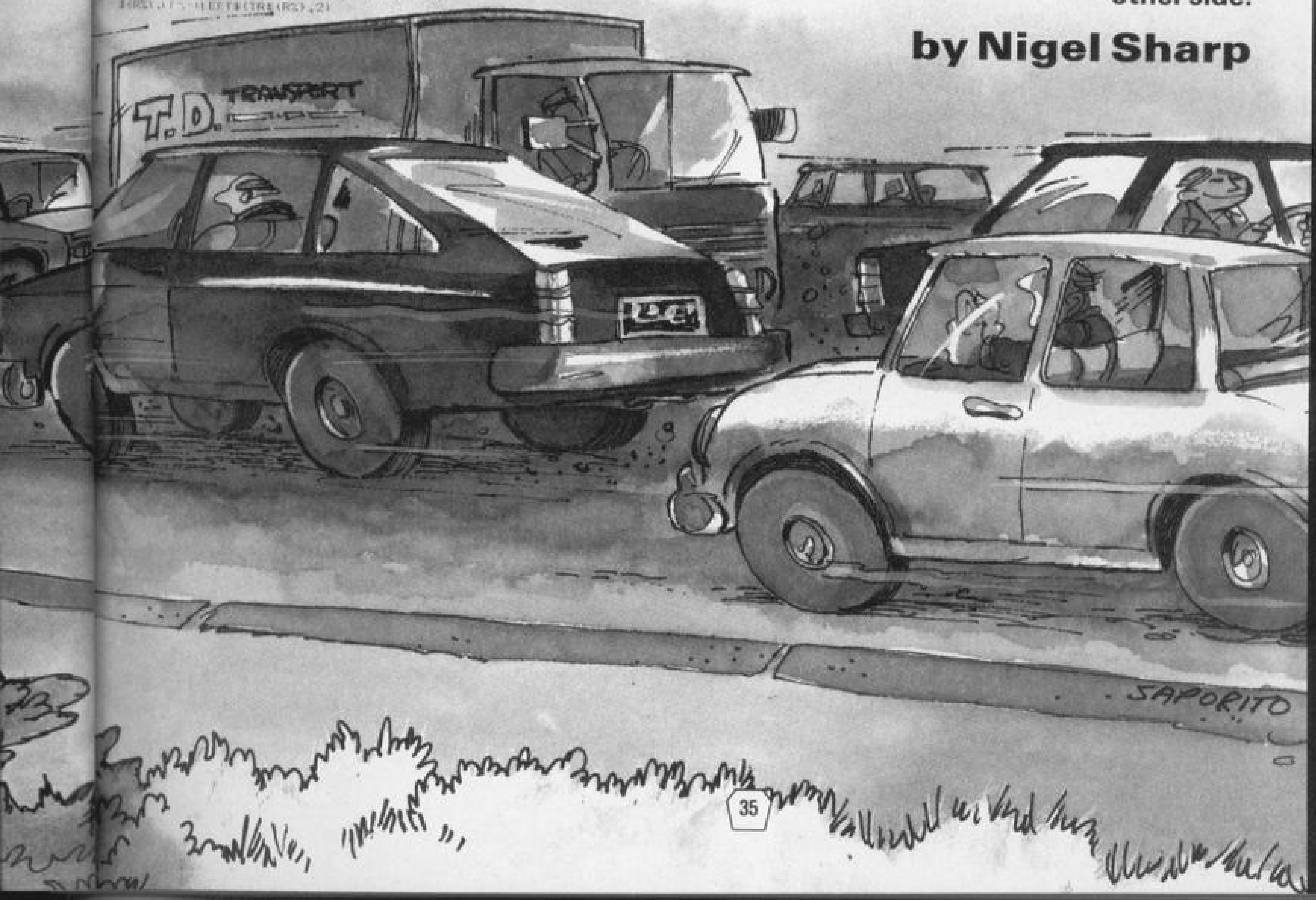
2070 DATA 5,12,0,5,3,1,3,10,0,0,1,1,0,5,
1,0,1,1,8,10,0,8,1,1,6,5,1,

6,1,1

2080 DATA 5,10,0,5,1,1,3,12,0,3,3,1,1,1,
1,0,5,1,0,8,1,0,5,1,0,1,1
```

This toad's really in a hole. You could say he's in a jam — a traffic jam. Careful as you go as you help this middle of the road toad hop, skip and jump his way safely to the other side.

by Nigel Sharp



Electrifying Action



Storm Warrior.

He needs no allies, his strength and agility will prove him worthy of the name – 'Storm Warrior'.

Storm Warrior is a 12 screen, all machine code, fast moving graphics adventure using 58K of RAM. It features 5 levels of play, full playing demo mode on the first four screens, game freeze facility and a fast loading system.

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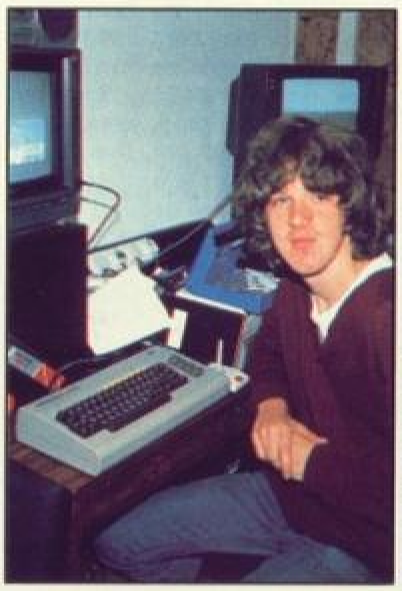
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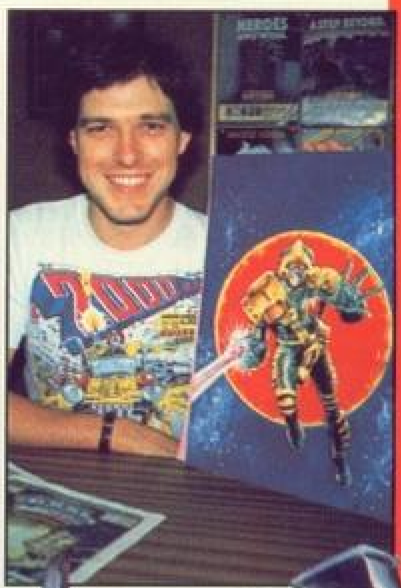
ON THE TRAIL OF THE BOUNTY HUNTER

IT'S A DOG'S LIFE

In the future of this galaxy few jobs are considered more dirty or despicable than bounty hunting. The dregs of criminal society, however, have to be caught and the task has fallen to the Strontium Dogs, mutant outcasts from 'normal' society. Johnny Alpha is the best there is. STEVE MacMANUS examines the background of this remarkable man.

IN THE BEGINNING* there was a cult comic, 2000 AD, *and its creation, a mean 'n moody anti-hero called Johnny Alpha. And wise men far away studied the character and said to themselves: "Herewith the raw material for an acey-doocey computer game!".





Time was when a criminal could commit various acts of evil and hide forever in an expanding galaxy. That was before the coming of the Strontium Dogs — bounty hunters of the 22nd Century.

Strontium Dogs have to be good because, in their job, only the best survive. Every fugitive from justice fears their shadow, none more so than the one cast by the man they call Johnny Alpha. To most he is a cold-hearted killer, a freak with a reputation of always bringing back his bounty, dead or alive. In truth he is just a man doing his job, one forced on him by cruel fate and the mutating effects of Strontium 90.

The Johnny Alpha story begins in 2150 A.D., just after the Great War on Earth. Strontium 90, a radioactive isotope present in nuclear fallout had 'warped' or mutated large sections of the populace. Inwardly they were the same as other people but their physical mutations attracted widespread loathing and disgust. They quickly became targets for hatred and prejudice.

One Nelson Bunker Kreelman fuelled the gathering anti-mutant feeling by passing a series of laws designed to degrade and harass the fallout victims. But Strontium 90 knew no politics and Kreelman's bigotry secretly rebounded on him when he discovered that his own son was a mutant.

The boy's name was Johnny. In appearance he looked completely normal — except for his eyes. They could emit Alpha Rays enabling him to see through solid objects and, it was said, lay bare a man's soul.



When Johnny's mutation was discovered his father had him imprisoned, but at the age of twelve Johnny escaped and joined the newly created Mutant Army, established to fight for mutants' rights across Britain.

By now, Kreelman had banned mutants from all forms of employment and any areas inhabited by the normals. In retaliation, the Mutant Army stormed the British Parliament. Although they achieved initial success Kreelman's forces soon overcame them and Johnny, along with his fellow mutant leaders, was sentenced to death.

However, escape soon followed and Kreelman was forced to resign under threat of disclosure that one of the mutant generals was his own son.

A swift settlement of the war followed and, in return for amnesty, the generals agreed to leave Earth for good. Many of their loyal troops chose to follow them into exile; some to settle on other planets, others to lose themselves in the endlessness of space.

A few of the toughest joined a new agency set up by the Galactic Crime Commission. The job was one the norms would not touch — working as Search/Destroy agents hunting the scum of the galaxy. Soon people had a new name for the mutant agents — Strontium Dogs. To have one on your trail means certain capture, even death if he is holding a termination warrant.

Johnny Alpha was one of the first to join the agency but prefers to spend most of his time in the field, trusting only his awesome array of weapons, his norm partner Wulf and their travelling companion, the highly-strung Gronk.

Johnny Alpha and his companions have undertaken many weird assignments, like a journey into Hell itself. But, for a man whose life has been spent fighting the twin evils of hatred and ignorance, a duel with Old Nick was probably . . . just routine.

ON THE TRAIL OF THE BOUNTY HUNTER



The story of *Strontium Dog* — the computer game — begins in that remote corner of the galaxy known to all as Southampton. To be truly accurate it begins in a remote corner of Southampton known to some as the offices of Quicksilva, the self-styled Game Lords. Here, in a remote corner of the offices, Creative Design Executive Mark Eyles (and a few others, who wish to remain nameless) sat reading their weekly intake of thrill-power, 2000 AD.

For some time Mark had considered the many fantastic characters that appear in 2000 AD as prime material to base a computer game round, it was just a matter of choosing the best. First choice was *Judge Dredd*, the comic's top character and favourite with the readers (or Earthlets) almost since the very first issue. Unfortunately, powerful money moguls in a land far away, which we'll call America, had already got most of the *Judge Dredd* merchandising tied up. Second choice was *Strontium Dog*, coincidentally the second most popular character with readers and one of the longest surviving 2000 AD series.

With the decision to go with *Strontium Dog* agreed on by all at Quicksilva, Mark then contacted the editorial staff of 2000 AD with some rough ideas to gauge their reaction. This proved positive and, with the official go-ahead given by 2000 AD's publishers, IPC Magazines, Mark began work on a basic concept for the game. "We wanted something that would suit the character and be fun to play," he told BIG K's roving reporter. Eventually a working concept for *Strontium Dog and the Death Gauntlet* was ready.

THE GAME

Strontium Dog Johnny Alpha is heading for a planet full of renegades. On the way his ship is attacked by the Stix Brothers; Strontium Dogs themselves, but devoid of morals or scruples. Alpha's ship is shot down but he escapes in an escape pod and crash lands on the planet's surface. His partner Wulf and their companion the Gronk are waiting for him in the city on the other side of the planet which means Johnny must cross the hostile landscape, running the gauntlet of the hoards of hostile renegades all out to get him because he is a Search/Destroy agent . . . a Strontium Dog. The game covers this deadly journey through areas of desert, mountains and eventually the city.

ENTER THE MAESTRO

Steve Kellett is 17 years old, a university undergraduate, and knows all there is to know about programming Commodore micros. He would be a candidate for the archetypal 'whiz-kid' tag if not for a few points: He is incredibly self-confident, hyper-critical of fellow programmers' efforts and well into heavy metal music.

In fact, Steve could be looked on as the product of a whole new 'generation' of young programmers — those who have come into the field heavily influenced by the 'pioneers' of the genre. Steve's hero is Jeff Minter, who he credits for his ability to produce top quality sound into his games.

"If it hadn't been for Jeff I wouldn't have been able to program good sound," Steve told BIG K. "I asked him at a computer show how to do good sound and he told me to use variables and showed me the techniques he'd used on *Grid Runner*. I went home and churned out about ten new sound effects of my own. These were the ones I took to the Commodore User Show earlier this year to show Paul Cooper of Quicksilva, who was very impressed and told me to keep in touch."

Those sound effects plus some sample work Steve had done for Ocean and another game completed in just two weeks was sufficient proof to Quicksilva he could handle games programming for them and, ultimately, got him the *Strontium Dog* assignment.

DIGITISING THE DOG

Work actually started on *Strontium Dog and the Death Gauntlet* at the beginning of August. Steve needed about a week to really get into the idea of the game. About a day was spent thinking about the scrolling routine. "I started on the scrolling about 3.00 pm one Friday, phoned Mark at 5.00 pm to say I couldn't do it, then had it working by 7.00 pm! If I can't do something I write it down." To prove his point reams of paper were produced covered in figures.

Animation of the Strontium Dog figure was especially complex. Twelve animation steps were used for walking, another twelve for running, seven for when he falls down, five when he gets up and a further eight while he's on the ground struggling. "A total of 88 sprites just for Alpha," Steve pointed. "There's 50K of game, 42K in reality. That may seem inefficient to some people but I use a lot of memory on graphics, title pages, etc."

By the end of August the game was up and running and just needed the finishing touches added, including the sound — Steve's speciality.

Next to sound, playability comes high on Steve Kellett's priority list. "I regard myself as a very good games player. I get good very quickly on games I really like. Minter's *Sheep in Space*, for example. I played that for two weeks and could get over a million. Any of Jeff's games I find easy. However, Quicksilva's *Boogaboo (The Flea)* I cannot beat, but it's good. I like 'cute' games."

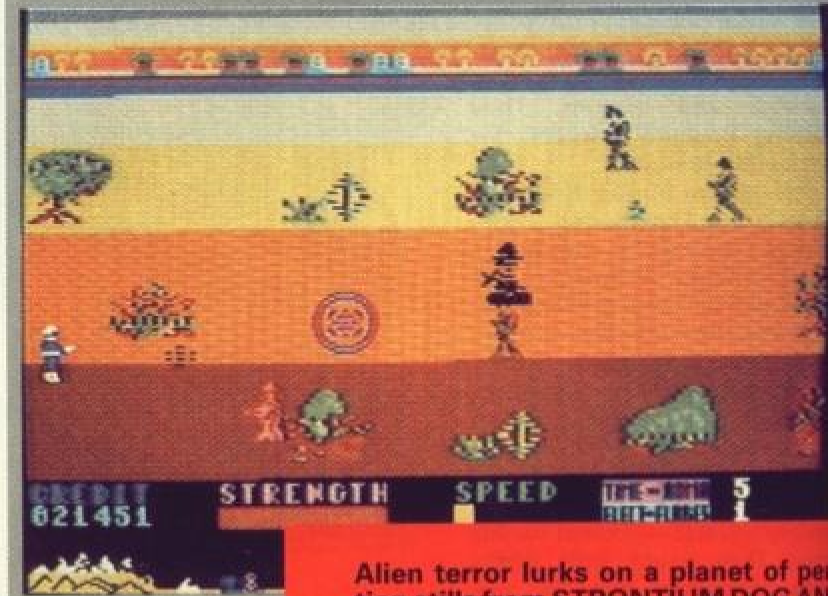
A.D. — AFTER THE DOG

His work on the *Strontium Dog* over Steve returns to college where he'll continue to ". . . slap ideas down on paper" until he gets home at Christmas and back to his computer (he doesn't have access to one at college).

Steve has definite plans to stay with a career in programming when he graduates and has lots of ideas of his own. "But nobody wants zap 'em up games," he complains. "I love them and think there's still lots to be done with them.

RICHARD BURTON





Alien terror lurks on a planet of peril. ...tion stills from STRONTIUM DOG AND T... DEATH GAUNTLET.

STRONTIUM DOG — THE KILLING

Meanwhile, in the place called Preston, strange but similar ideas were floating through the mind of John Williams, managing director of Channel 8 Software.

Like Mark Eyles, John is an avid fan of *2000 AD.* He too could see the potential in some of the characters for computer games. But it wasn't until an idea for a new space game came his way that things began to move. "The game was good," John told BIG K, "but it lacked a theme and a direction." He didn't have to go far to find both. *Strontium Dog* was considered to be ideal but John also took it a stage further. Instead of basing an original game round the character of *Strontium Dog,* like Quicksilva, John decided to use the theme and elements of an actual episode of *Strontium Dog* that had appeared in *2000 AD.*

The unenviable job of transferring an existing story onto the computer screen was given to Paul Hargreaves, who lives in Leyland, near Preston. At 15, Paul is already a programmer of some experience with his first game, *Borzak,* already out from Channel 8 Software.

Work began on the game in April and continued through till August. Paul worked on evenings during term time (after homework, of course!) and weekends. During school holidays he was able to work in Channel 8's offices.

THE GAME

On a planet in the very centre of the Milky Way the cruel Despots of Zed perpetuate an age-old ritual known simply as The Killing. Each year participants from all over the galaxy gather to take part. The objects is simple: to kill every other participant. The sole survivor is in line for vast riches. The ritual takes place in a city which is cleared to become a vast killing ground.

Participants in The Killing are nearly all murderers and criminals with bounties on their heads — which naturally attracts bounty hunter Johnny Alpha. His reason for taking part is to catch — dead or alive — as many of the criminals as possible and collect the bounty on each. His weapons: his trusty blaster and electro-flares.

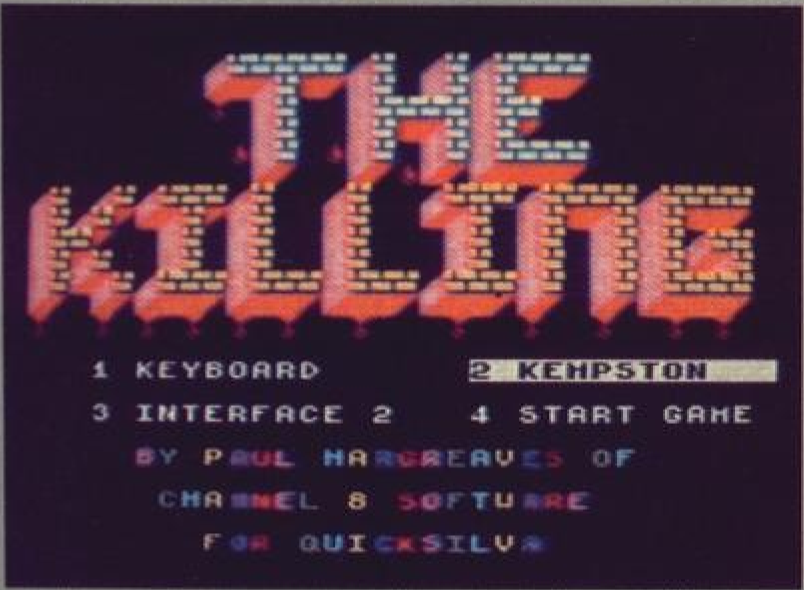
Paul's visualisation is accurate and superbly detailed. It incorporates many scenes from the actual 2000 AD story plus some very flashy screen routines.

By late August the game was finished and both John and Paul travelled down to London to show the game to IPC Magazines, the copyright owners and — it should be said — also the publishers of a certain computer magazine that you are reading at this moment!

BIG K's expertise (ahem) was called in for evaluating the quality of the game and the magazine's computer room was quickly pressed into service for a 'screening' of Channel 8's production. It was soon evident, from the graphics alone, that the company was onto a winner. Some of Tharg's droids were summoned from the nearby Command Module to add their enthusiastic approval of the game. BIG K was able to assure IPC Magazines that their character was in good hands.

But how to market the new game? Quicksilva had just pipped Channel 8 to the post in acquiring the licence to *Strontium Dog* and already had their own game well into development. At BIG K'S urging, John quickly got in touch with Quicksilva to see if some compromise could be reached.

About a week later the two companies met. It was clear to both sides that they each had a good product and that they should co-operate. Quicksilva agreed to take on the marketing of both games, with full credit being given to Channel 8 and Paul Hargreaves on *Strontium*









Johnny Alpha blasts his way through a deadly lazer schoot-up. Actual screen scenes from THE KILLING.

Dog and the Killing. Channel 8, in return, would provide technical and information back-up on its game. The deal worked out well. It meant that the top two micros would be covered by *Strontium Dog* games: Commodore 64 (*The Death Gauntlet*) and Spectrum 48K (*The Killing*).

THE QUIET ACHIEVER

Paul Hargreaves is quiet, unassuming and very talented. Like Steve Kellett he is one of the 'new breed' of programmers; self-confident, self-taught and free from the constraining influences of the arcade video games. An influence that produced so many derivative games in the 'early days' of computer gaming. Like Steve is to the Commodore 64, Paul is a loyal Spectrum man.

He began programming about two years ago on a ZX81 which he bought . . "only to learn on," and discarded after a month when he got his first Spectrum. "I'd always intended to get a Spectrum right from the start," he told BIG K.

He has no one he particularly admires for their programming but has a favourite software company in Ultimate. "I particularly like *Sabre Wolf* at the moment," he said.

Paul considers graphics to be the most important part of any game and develops all his own routines — some very impressive ones are on display in *The Killing*.

With some years of education still ahead of him Paul isn't thinking too much at the moment about continuing a career in games programming. At the moment he's working on developing his machine code techniques (*The Killing* was written in BASIC and then compiled) for his next game.

Strontium Dog and The Killing is a start that promises great things from Paul. Current 'superstars' would do well to keep one eye on him at all times!



BURT TELLS IT LIKE IT IS

IN THE mid-70's Earth was a pretty dull place. Unbeknownst to the comic-buying public of that time a deadly parasite was at work.

Then, early in 1977, a spacecraft from the star system of Betelgeuse landed on London's South Bank. It contained an awesome being — the Mighty Tharg. Tharg had but one mission: to bring Thrill-power to Earth comics.

This he accomplished in one bold stroke by producing 2000 AD; a comic so new, so innovative that it shattered all previous conceptions of what comics should be like. It contained characters, sights, experiences and situations that human minds could barely cope with. It was Thrill-power personified!
Young natives of Earth, or 'Earthlets' as Tharg dubbed them, flocked to the new publication, revelling in every picture and every word. An army of droids and robots had been created by Tharg specifically to produce all the strips in 2000 AD. One character, *Judge Dredd,* grim lawman of the 22nd Century, was an instant mega-hit. Many others followed: *M.A.C.H. One, The Harlem Heroes, Old One Eye,* the hag dinosaur, the list went on.

As the years passed 2000 AD grew in stature. Young Earthlets continued to discover it while early readers stayed loyal to the Mighty Tharg as they grew older. For the first time ever a comic appealed to young and old alike.

Tharg became a figure of great authority and power. Betelgeusian phrases worked their way into the English language: *Borag Thungg* — Galactic greetings; *Zarjaz* — Fantastic; *Scrotnig*—Thrill-powered; *Splundig vur Thrigg* — Farewell.

In 1978 a spin-off comic was produced called Star Lord. It didn't last very long but from it came two series that rapidly became 2000 AD hits; *Ro-Busters* and . . . *Strontium Dog.*

The adventures of the mutant bounty hunter soon came second only to *Judge Dredd* in popularity. Much of this can be put down to the Mighty Tharg's efforts in keeping the same talented creative team on the series from then to now: script robots John Wagner and Alan Grant and art robot Carlos Ezquerra (who drew this issue's cover and the pack art for both games).

Times continued to move on bringing more classic series to 2000 AD: *Robo-Hunter, Ace Trucking Co., Meltdown Man, A.B.C. Warriors, Nemesis, Rogue Trooper, D.R. & Quinch.*

In 1984 2000 AD has passed its 400th issue, its popularity greater than ever. Earthlets from eight to eighty read and enjoy it every week. There are 2000 AD societies on college campuses all over the country. Rock groups The Human League and Madness are acknowledged fans. Tharg's creations have spawned books, badges, T-shirts and games (computer and non-computer variety).

Oh, yes, and that deadly parasite that was at work in 1977 can still be found. It's called a *Thrill-Sucker* and I . . er . . um . . had something to do with . . er . . it. But that's another story.



Johnny Alpha fronts the action on these cover reproductions of 2000 AD.

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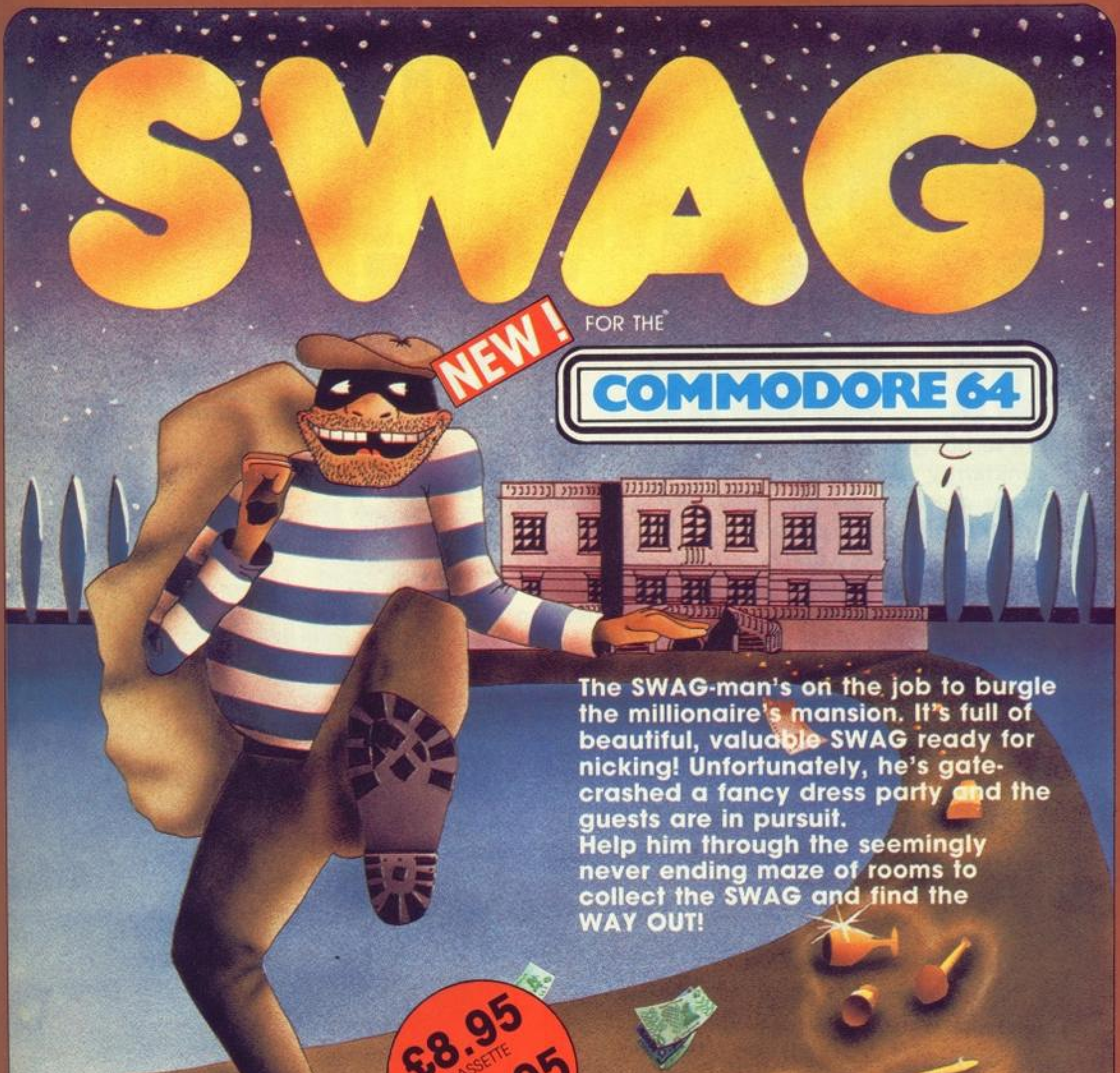
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GREAT VIDEO D[S...] OF OUR TIME ...And a[...]

We're not going to join those old fogies who constantly tell you that too much computer game playing can turn you into a mindless green zombie with purple boils. No, but we do say that some very real health hazards do exist in gaming if you don't take care. JOHN CONQUEST, wounded in the line of BIG K reviewing duty, diagnoses the dreaded Video Wrist . . .

A while ago I started noticing a slight ache in my wrist, a tender sensation at the base of the thumb and an occasional twinge of real pain. I worried about it off and on for a week or two while it got steadily, though not cripplingly, worse until one day I jerked my wrist rather suddenly and, man, it exploded! Really agonising. White-lipped and trembling I staggered to my local health centre (Drs White, Lipped and Trembling), where I discovered that I had De Quervain's Disease, otherwise known as tenovaginitis, otherwise known as *Video Wrist*.

Actually Video Wrist is only one manifestation of *tenovaginitis*, as it's also fairly common among DIYers — from prolonged sawing, hammering and screwdriving — sportspeople, especially windsurfers, and mothers without washing machines, from wringing out nappies. It's an inflammation of any tendon sheath, most commonly in the wrist and hands, from over-use in repetitive movements.

Its big brother, *tenosyvanitis*, excessive-use injury, is probably not going to crop up much among computer folk. Video Wrist is a matter of repeated mild irritations of the tendon running over the radial styloid, involving the muscles that move the thumb, the abductor pollicis longus and the extensor pollicis brevis. Rotate your thumb and you'll see these guys in action. When you work a joystick, particularly one with handle and fire control, you put all this stuff under tension for extended periods, subjecting it to tiny traumatic movements and stresses. Do this enough and you'll have Video Wrist.

Curing it is pretty straightforward. There's a whole range of those non-steroidal, anti-inflammatory agents — glorified aspirins — which are about the most investigated group of medicines around. Just as well because they all have side effects which your doctor should make you fully aware of. Oh, and you have to stop using a joystick for a week or two. Well, you didn't expect the cure to be easy, did you? If I'd left my problem much longer, or hadn't responded to the pills, then the next step would have been an injection of cortisone under anaesthetic directly into the tendon sheath. Things would have got a lot worse before they got better, with at least 24 hours of pretty nasty pain, but results are pretty well guaranteed. This is a very heavy duty solution, though.

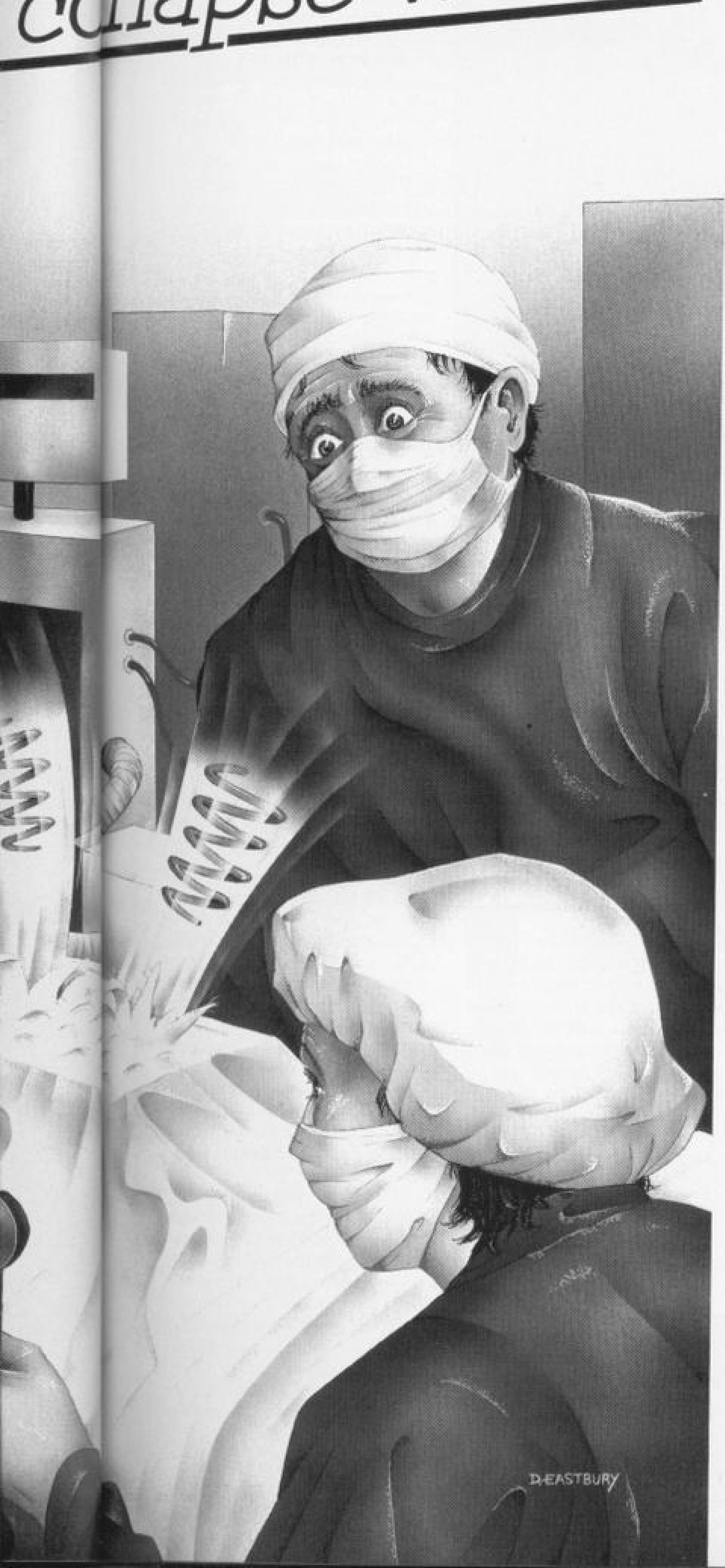
So there you have it — how I caught Video Wrist and lived to tell the tale. Not the deadliest disease going, but unpleasant enough. If you get any of the symptoms — aches, twinges or whatever down where the thumb runs into the wrist — it really is a good idea to get it sorted out right away because it won't disappear of its own accord; not unless you manage to immobilise your wrist completely for a week or two, which hardly sounds practical. And if you do leave it, it'll only get worse and the treatment could end up being very painful.



DISEASES

collapse ware

Listen, is it just me? Do I have some kind of electronic jinx? Am I computer-unfriendly? This here is an appeal to BIG K readers to tell me that I'm not alone in having a pile of non-functioning electronic junk. Hear my story (it's sad but true) and then let us have yours.



Easily the most expensive of my write-offs is a CBS Colecovision. How I loved that machine and it's well possible that I loved it to death. Last Christmas I took it to a festive house party, every member of which became a total all-out *Ladybug* addict. I mean, that machine was running at 12-hour stretches day after day (well, it got dark early, didn't it?). It took another terrible hammering when *Baseball* came out and in between was being regularly thrashed. Now it doesn't want to know. After half an hour or so it gets tired and despondent, the screen starts jumping, the colours go weird, the controls won't respond and it's time to switch off. For all practical purposes, it's been totalled.

Pretty much the same thing happened to an Intellivision console that several people played far too much *Advanced Dungeons & Dragons* on. Neither machines' internal ventilation was up to that kind of use and something inside overheated and warped. I'm not being deliberately vague; somebody who actually knows about these things went over both of them and failed to identify exactly where the problems were. That's the trouble with this stuff; a chip that doesn't work looks exactly the same as one that does and if it's on the blink, rather than stone dead testing won't necessarily point the finger at the right culprit.

Moving along the catacomb we come to an Atari 410 Program Recorder. This little bastard avoided detection for some time because for a while I assumed that the glitch lay in Atari's notoriously unreliable cassette interface. But, as usual, the 800XL was blameless. When the guilty party was finally identified, I again assumed that we were looking at slipped recording/playback heads. Not so. As I managed to persuade Atari to replace it with a 1010 recorder, I never found out what the actual problem was, or whether it was fixable.

Normally I wouldn't take any particular notice of totalled joysticks. In my experience they are like unto the flowers of springtime, doomed to blossom for a certain season and then wither and die. My dead Colecovision controller and *Quickshot II* joystick are, therefore, hardly worthy of remark. However I do take some pride in having wiped out a *Wico Three Way*.

Those of you with 1K memories or better may well be saying to themselves, "Is this not the very same Conquest who only last August was calling the *Wico Three Way* the 'top of the range' and recommending it?" 'Tis true, friends. What can I say? For six happy months the *Three Way* did sterling work, so far superior to every other joystick that I did not hesitate to shout its praises. Then one day my fighter banked round a tight corner, I pulled it over to grab the clever points — and it strained! It jerked! It wobbled!

Now Wico's shaft bearings are about the best around, but even they are only plastic. My problem was that in six months savage use, including a period of severe *River Raid* addiction, I'd either worn a flat spot onto the bearing or thrown the springs out of true, either of which would produce the observed effects. Unfortunately a joystick that is 75% satisfactory is 100% unsatisfactory and such is the nature of the beast, there's not much that can be done about it. The only cure is a whole new joystick. To be fair to Wico, I wouldn't consider getting anything else.

OK, so I haven't done anything really spectacular, like sink an entire microcomputer, but add up a Colecovision (£99) and Intellivision (£39) console, the Atari recorder (£45), the Wico joystick (£30) and suddenly you're talking about a couple of monkeys worth, without even mentioning odds and sods like the non-loading software.

True story time: A friend of mine recently bought two complete Spectrum set-ups, including recorders, interfaces and joysticks, for the youth clubs she runs. Fortunately she bought them at Lion House in London which has a strict policy of testing everything before they let you walk out of the shop. That's how she saw two recorders and an interface being slung into the 'Return to Sender' box. We're talking brand-new stuff here, straight out of the boxes, which makes me feel that my scrap heap isn't just down to me but has a certain something to do with industry standards.

If that proposition is true then there must be an awful lot of people with similar stories to tell. Have *you* written one off . . . ? **JOHN CONQUEST**

It's the game that brought people into the arcades in droves. STEVE KEATON charts the rise and rise of a humble yellow blob that brought a whole new experience to eating.

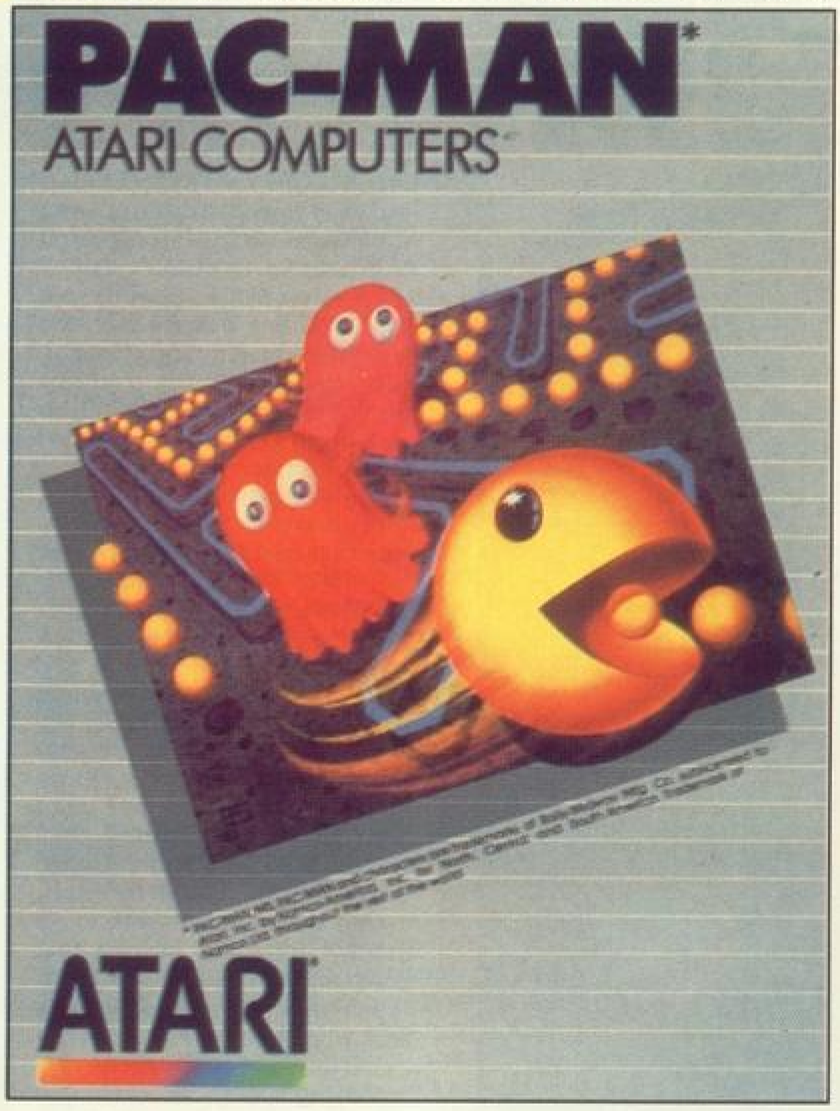
HIS NAME is legend, his curse incomparable. He's the littel yellow guy with the big mouth who opened the games closet and made joysticks respectable in mixed company. He's *Pac-Man*, the first arcade superstar! Few games can claim as many offspring. As Pac-mania raged we witnessed the birth of a whole Pac-Famly. *Pac-Man* begat *Ms Pac-Man* who in turn begat *Baby-Pac* and a whole slew of related yellow and blue merchandise. Back in '81 the world seemed peppered with little white energisers and people walked to a 'wocka-wocka' rhythm (which wasn't easy). Things got totally out of hand.

Addicts would wake ech morning beneath Pac-Sheets, drink Pac-Tea from a Pac-Mug and then dress in Pac-Apparel. There was even a *Pac-Man* cartoon show! This proved the final indignity. Upon seeing it the Pac-Phenomenon promptly pegged out and died. The gaming world was never to see its like agiain.



Bally Midway originally licensed *Pac-Man* from little known Nipponese creators, Namco, for introduction to the United States. The weird gobbling game found itself residing amongst banks of straight shoot 'em ups and surprisingly prospered. Then there was an explosion and *Pac-Man* rocketed to the top slot of the U.S. *Play Meter* charts. The game had caught on with a vengeance! Bally churned out over 100,000 Pac-units to sate the demand while unscrupulous rivals equalled that figure with a flood of rip-offs masquerading under such guises as *Puck-Man* and *Gobbler*. The market was saturated. Fall-out went global and for nigh on a year *Pac-Man* ruled the world.

Armchair philosophers pondered its success. The first non-violent video, some pompously declared; an expressionism, squealed others. Both claims were hooey. The little fella was just uniquely playable. A perfect combination of challenge, accessibility and audio-visual



No.7 PAC MAN (Bally-Midway, Atari)

harmony. It delighted the senses and tickled the funny bone. There was nothing else like it at the time.

Pac-Man was paced to perfection. The perambulating maze monsters, Blinky, Winky, Pinky and Clyde were all deliciously geared. They begin at a sluggish pace and then speed up. Soon both Pac and monsters are travelling at the same speed, but survive too long and the Pac runs out of puff. Infuriating! The monsters' periods of edibility undulate in a similar fashion. Beginning at about 7 seconds, they dwindle to 2, then rise to 5 and then after a brief respite all but vanish. And just as you think your wrist will snap under the pressure, there's an intermission to break the tension. Pac-

It was also predictable. Amongst the debris I laughingly refer to as my studio, I have diagrams which would ensure total success over any screen. I never use them. Why spoil a brilliant game? I felt the same about the PEEKS and POKES for Miner Willy. Others, though, had fewer scruples and Pac-Masters appeared in evey arcade. You'd often see a queue of tireless individuals who for a couple of coins could hog a machine for a

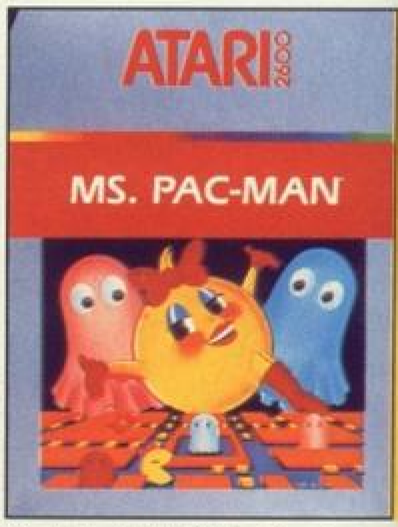
PEEKS and POKES for Miner Willy. Others, though, had fewer scruples and Pac-Masters appeared in evey arcade. You'd often see a queue of tireless individuals who for a couple of coins could hog a machine for a weekend. Million-plus players! To combat this new breed of punter, arcade owners set about the game with chainsaws. Clumsy brain surgery on the PCB resulted in the easier sheets being all but eliminated. Some machines simply crashed at strategic points. Disgruntled, I left the arcades and waited for



the little fella to come home.

It was a long wait. Atari trumpeted the arrival of an officially licensed VCS ROM and then blew it in spectacular fashion. To this day it remains their worst-ever arcade conversion, sparking off hoots of derision whenever mentioned. Any similarities between it and the Midway monster are clearly unintentional! The familiar maze went out the window, as did the cast of monsters and bonus treats (also known as 'Pac-Lunches'). It looked awful and played even worse. Despite eight game variations only one was anywhere near acceptable and even that quickly became a doddle. Pac-Fans could hardly believe their (bad) luck.

The company later redeemed themselves with a far more convincing conversion for their 400/600/800 computer range, restoring the missing features and improving the gameplay, but cynicism was rife. By way of an apology Atari converted *Ms Pac-Man* to the VCS with much greater effect. Curiously history repeated itself with the launch of the Atarisoft range. Once again *Pac-Man* was set up as a figurehead and once again Atari fum-



bled the ball. Their Spectrum version was almost as big a turkey as the earlier VCS ROM. "Our big mistake was going for 16K," a spokesman was heard to moan. Realising their mistake Atari once again turned their attention to *Ms Pac-Man*. The as yet unreleased (48K) Spectrum conversion is brilliant. Unfortunately the damage has been done. No one wants to know any more. If the Pac-Family moved in next door most people would up and sell.

The little yellow guy still hangs on in the arcades though. Battered Pac-Men can be seen propping up the walls in seedy game parlours, like video winos. Few survive in their original cabinets and most boast duff joysticks and arthritic response times. A sad state of affairs. Newer visitors, stumbling over the old fella doubtless wonder

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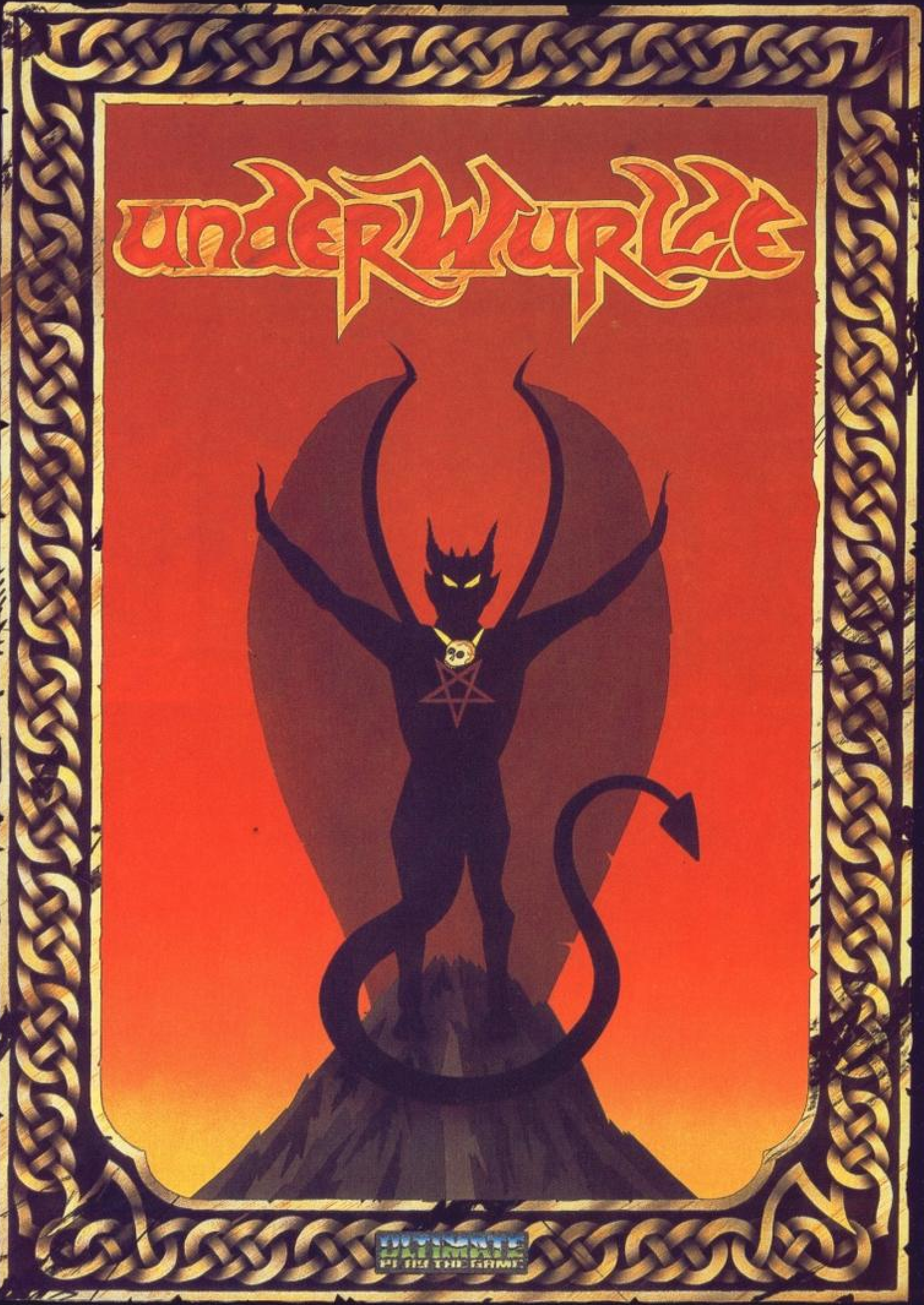


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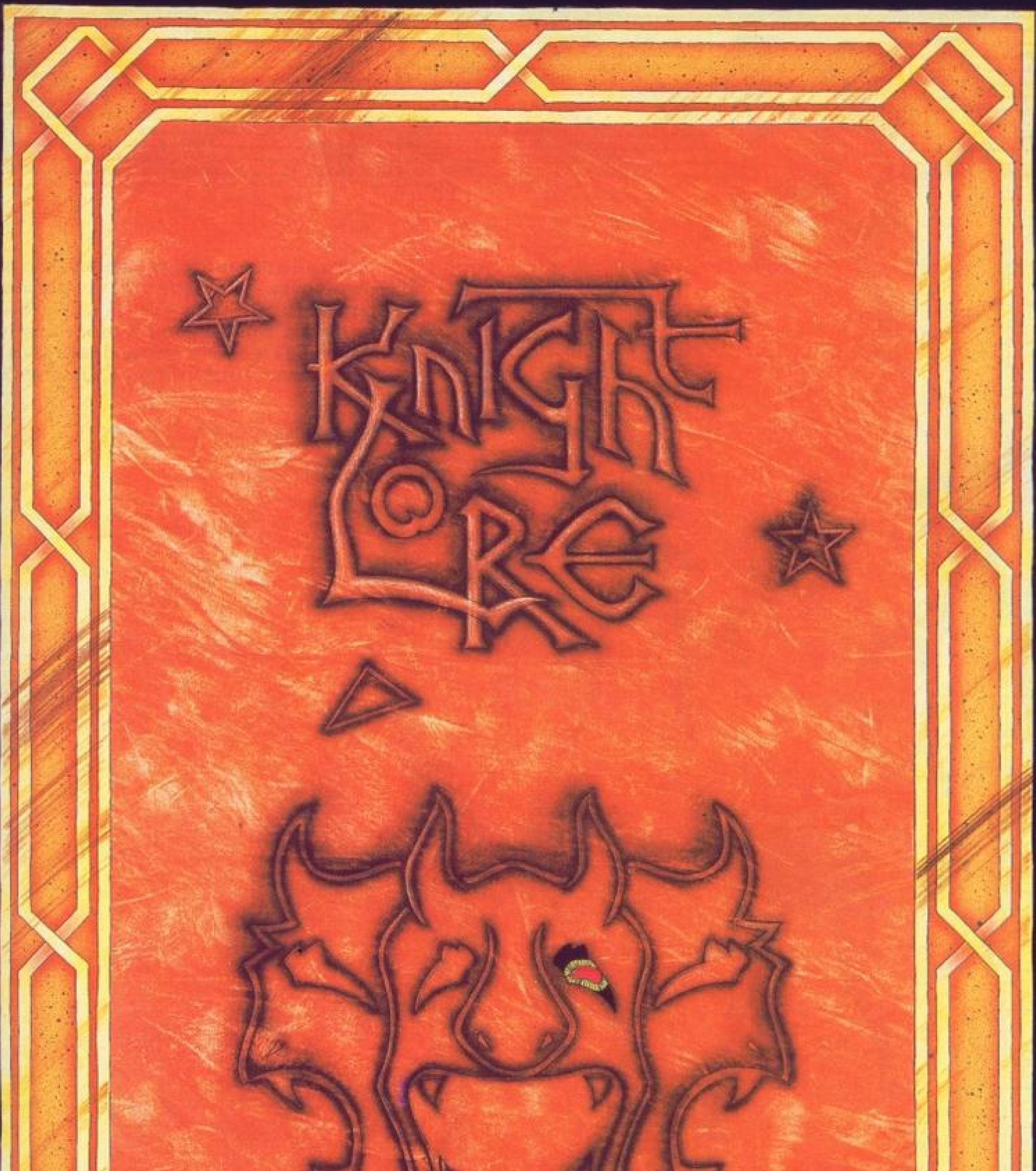
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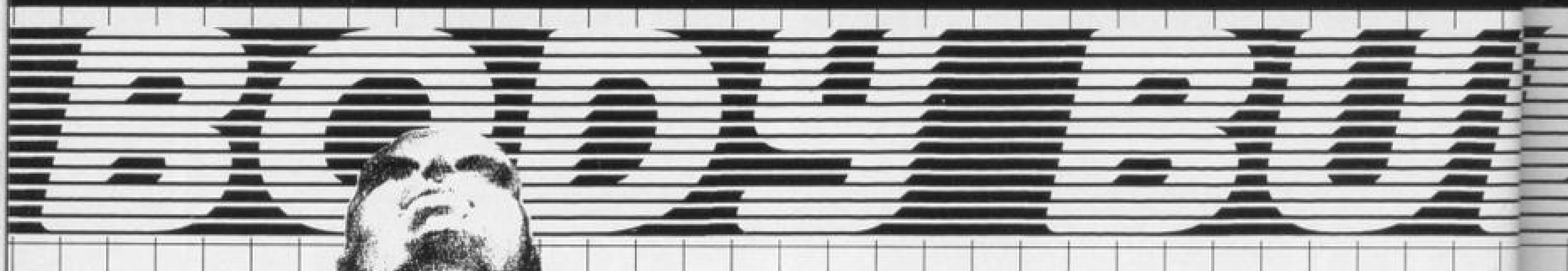


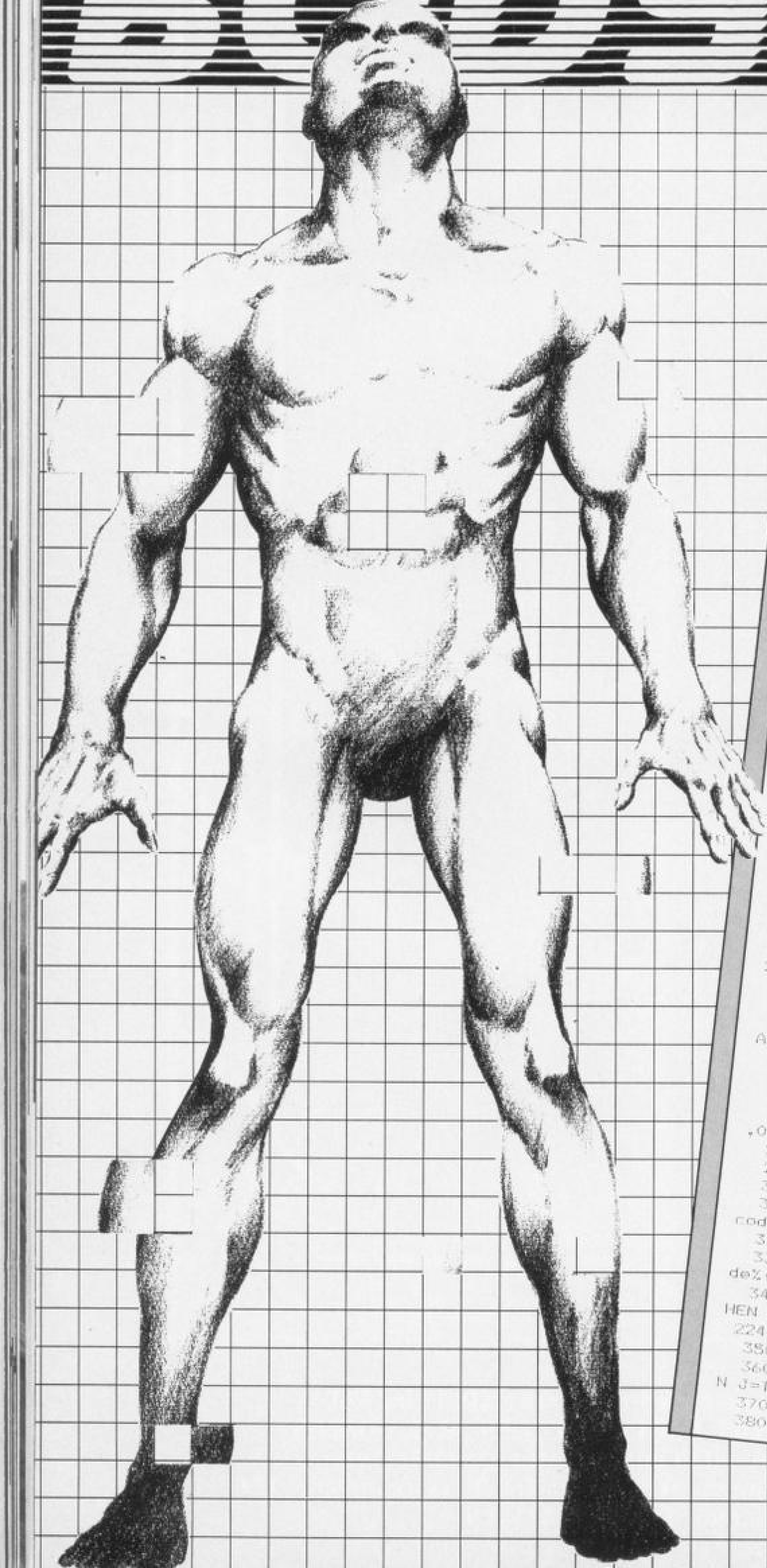
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If you've a lust to design characters for use in yo[ur] own games — but have until now lived in mortal terror of BBC Basic's VDU 23 statement — trembl[e] no longer. This easy-to-use prog allows you to build up shapes on a grid and save them to tape f[or] some Future Point In Time. Full instructions in th[e] prog.

by Himesh Shah

For BBC 'B'

```
>LIST.
    3  REM ************************
    5  REM *******Designer*********
    6  REM ************************
    7  REM ****by***Himesh**Shah****
    9  REM ************************
   10  VDU 23,255,255,255,255,255,255,255,25
5,255,255
   20 MODE 4
   30 PROCinit
   40 PROCinstr
   50 PROCset
   60 PROCbeg
   70 PROCkey
   80 END
   90 DEF PROCset
  100  FOR T=127 TO (127+(32*16)) STEP 3
2
  110  MOVE T,255
  120  PLOT 1,0,32*16
  130  NEXT
  140  FOR Y=255 TO (255+(32*16)) STEP 3
2
  150  MOVE 127,Y
  160  PLOT 1,32*16,0
  170  NEXT
  180  MOVE 100,511:PLOT 1,54+(32*16),0
  190  MOVE (127+(32*8)),218:PLOT 1,0,63
+(32*16)
  200  PRINT TAB(3,5);1:PRINT TAB(20,5);
2:PRINT TAB(3,27);3:PRINT TAB(20,27);4
  210 ENDPROC
  220 DEF PROCinit
  230  DIM Pos%(8,8,4):DIM Code%(4):DIM
A%(8):DIM S$(4)
  240  X%=1:Y%=1:Xn%=1:Yn%=1:N%=1
  250  A%=0:DIM V$(4):J=FALSE
  260  DX%=0:DY%=0
  270  ENVELOPE 1,1,5,-8,-3,5,10,4,126,0
,0,-126,126,126
  280 ENDPROC
  290 DEF PROCbeg
  300  VDU 28,23,28,39,2
  310  PRINT      " What    are    the   ASCII
codes for  the characters?"
  320  FOR C=1 TO 4
  330  PRINT TAB(1)STR$(C)+": ":INPUT;Co
de%(C)
  340  IF Code%(C)<224 OR Code%(C)>254 T
HEN SOUND 1,1,100,6:PRINT'" only  codes
224 to 254 available.":GOTO 330
  350  FOR K=1 TO C
  360  IF Code%(C)=Code%(K) AND C<>K THE
N J=TRUE
  370  NEXT
  380 IF  J=TRUE THEN PRINT'     " You
```

BODY BUILDER FOR ACORN ELECTRON

se in your
mortal
– tremble
you to
to tape for
ons in the

```
can't   usethe   same   codetwice.":SOUN
D 1,1,101,6:J=FALSE:GOTO 330
 390  NEXT
 400  VDU 26
 410  PRINT TAB(3,5);Code%(1):PRINT TAB
(18,5);Code%(2):PRINT TAB(3,27);Code%(3)
:PRINT TAB(18,27);Code%(4)
 420  VDU 28,25,28,39,2
 430 CLS
 440 ENDPROC
 450 DEF PROCkey
 460  VDU 5
 470  GCOL 3,3
 480  MOVE 127+((X%-1)*32),1024-(264+((
Y%-1)*32)):PRINT;"+";
 490  P$=GET$
 500  MOVE 127+((X%-1)*32),1024-(264+((
Y%-1)*32)):PRINT;"+";
 510  *FX 15,0
 520  IF P$="/" THEN DY%=1:DX%=0
 530  IF P$=":" THEN DY%=-1:DX%=0
 540  IF P$="Z" THEN DX%=-1:DY%=0
 550  IF P$="X" THEN DX%=1:DY%=0
 560  IF P$="/" OR P$=":" OR P$="Z" OR
P$="X" THEN X%=X%+DX%:Y%=Y%+DY%:PROCchec
k
 570  IF P$=" " AND Pos%(Xn%,Yn%,N%)=1
THEN  Pos%(Xn%,Yn%,N%)=0:MOVE 127+((X%-1
)*32),1024-(264+((Y%-1)*32)):PRINT;CHR$(
255)::X%=X%+DX%:Y%=Y%+DY%:PROCcheck:GOTO
 710
 580  IF P$=" " AND Pos%(Xn%,Yn%,N%)=0
THEN  Pos%(Xn%,Yn%,N%)=1:0%=0:MOVE 127+(
(X%-1)*32),1024-(264+((Y%-1)*32)):PRINT;
CHR$(255)::X%=X%+DX%:Y%=Y%+DY%:PROCcheck
:GOTO 710
 590  IF P$="1" THEN PROCfigout(1)
 600  IF P$="2" THEN PROCfigout(2)
 610  IF P$="3" THEN PROCfigout(3)
 620  IF P$="4" THEN PROCfigout(4)
 630  IF P$="!" THEN PROCdelete(1)
 640  IF P$=CHR$(34) THEN PROCdelete(2)
 650  IF P$="£" THEN PROCdelete(3)
 660  IF P$="$" THEN PROCdelete(4)
 670  IF (ASC(P$)>52 AND ASC(P$)<58) OR
ASC(P$)=48 THEN 680 ELSE 760
 680  VDU 4:CLS:FOR Q=1 TO 4:PROCfigout
(Q):NEXT
 690  IF P$="5" THEN PRINT 'S$(1)+S$(2)
 700  IF P$="6" THEN PRINT 'S$(3)+S$(4)
 710  IF P$="7" THEN PRINT 'S$(1)+CHR$(
10)+CHR$(8)+S$(3)
 720  IF P$="8" THEN PRINT 'S$(2)+CHR$(
10)+CHR$(8)+S$(4)
 730  IF P$="9" THEN PRINT 'S$(1)+S$(2)
+CHR$(10)+CHR$(8)+CHR$(8)+S$(3)+S$(4)
 740  IF P$="0" THEN PRINT 'S$(1)+S$(2)
+S$(3)+S$(4)
 750 VDU5
 760  PROCkey
 770 ENDPROC
 780 DEF PROCcheck
 790  IF X%<1 THEN X%=16
 800  IF X%>16 THEN X%=1
 810  IF Y%<1 THEN Y%=16
 820  IF Y%>16 THEN Y%=1
 830  IF X%<9 AND Y%<9 THEN N%=1:Xn%=X%
:Yn%=Y%
 840  IF X%>8 AND Y%<9 THEN N%=2:Xn%=X%
-8:Yn%=Y%
 850  IF X%<9 AND Y%>8 THEN N%=3:Xn%=X%
:Yn%=Y%-8
 860  IF X%>8 AND Y%>8 THEN N%=4:Xn%=X%
-8:Yn%=Y%-8
```

```
 870 ENDPROC
 880 DEF PROCfigout(Nf%)
 890  VDU4
 900  V$(Nf%)="VDU 23,"+STR$(Code%(Nf%)
)
 910  FOR Yf%=1 TO 8
 920  A%(Yf%)=0
 930  FOR Xf%=1 TO 8
 940  IF Pos%(Xf%,Yf%,Nf%)=1 THEN A%(Yf
%)=A%(Yf%)+(2^(8-Xf%))
 950  NEXT
 960  V$(Nf%)=V$(Nf%)+","+STR$(A%(Yf%))
 970  NEXT
 980  PRINT V$(Nf%)
 990  VDU 23,Code%(Nf%),A%(1),A%(2),A%(
3),A%(4),A%(5),A%(6),A%(7),A%(8)
 1000  S$(Nf%)=CHR$(Code%(Nf%))
 1010  PRINTS$(Nf%)
 1020 ENDPROC
 1030 DEF PROCdelete(Nd%)
 1040  FOR Yd%=1 TO 8
 1050  IF Nd%=1 OR Nd%=2 THEN Ye%=Yd% EL
SE Ye%=Yd%+8
 1060  FOR Xd%=1 TO 8
 1070  IF Nd%=1 OR Nd%=3 THEN Xe%=Xd% EL
SE Xe%=Xd%+8
 1080  IF Pos%(Xd%,Yd%,Nd%)=1 THEN MOVE
127+((Xe%-1)*32),1024-(264+((Ye%-1)*32))
:PRINT;CHR$(255);
 1090  Pos%(Xd%,Yd%,Nd%)=0
 1100  NEXT
 1110  NEXT
 1120 ENDPROC
 1130 DEF PROCinstr
 1140  CLS:PRINT TAB(9,3)"D e s i g n e
r"
 1150  PRINT TAB(9,4)"_________________"
 1160  PRINT TAB(3,7)"This program is a
n aid to help you todesign characters fo
r use in other prog-rams. All the tediou
s calculations  ass-ociated  with the  V
DU 23  statement aredone for you."
 1170  PRINT TAB(3,14)"All you are are
required to do is toenter the ASCII code
s for the charactersand fill in the pixe
ls on the grid whichconsists of four cha
racters."
 1180  PRINT TAB(1,25)"press SPACE for c
ontrols"
 1190  REPEAT:UNTIL INKEY(-99)
 1200  CLS
 1210  PRINTTAB(14,4)"ControlS"
 1220  PRINTTAB(14,5)"________"
 1230  PRINT TAB(4,6)"Z.....Left     X...
..Right"
 1240  PRINT TAB(4,7)"/.....Down     :...
..Up"
 1250  PRINT TAB(1,9)"SPACE.....Fill pix
el if empty                      Empty p
ixel if filled"
 1260  PRINT TAB(1,12)"1-4.......Print c
haracters 1...,4 and              their
VDU 23 statements"
 1270  PRINT TAB(1,15)"1-4 with SHIFT...
characters 1...,4 are
 cleared"
 1280  PRINT TAB(1,18)"5-9.......Print V
DU 23 statements and              groups
 of characters"
 1290  PRINT TAB(3,20)"5....characters 1
and 2"
 1300  PRINT TAB(3,22)"6....characters 3
and 4"
 1310  PRINT TAB(3,24)"7....characters 1
and 3"
 1320  PRINT TAB(3,26)"8....characters 2
and 4"
 1330  PRINT TAB(3,28)"9....all the char
acters in a block"
 1340  PRINT TAB(3,30)"0....all the char
acters in a line"
 1350  VDU10:VDU 10
 1360  PRINT TAB(5,31)"press SPACE to be
gin"
 1370  REPEAT:UNTIL INKEY(-99)
 1380  CLS
 1390  ENDPROC
```

BIG K GETS PARANOID...

A while back, reader GARETTI JOHNSON lent a home-grown Spectrum prog to a "friend" — later he was miffed, to say the least, when he discovered copies of the prog circulating locally at £1 a time. Enraged, he sat down to figure out how This Could Never Happen Again (he doesn't say what happened to the friend) . . . and here's the result.



PROTECTOR!

AFTER LENDING my latest masterpiece to a friend for a couple of days, I was amazed and annoyed to find copies of it being sold for a pound each.

This caused me to wonder if there was a way that BASIC programs could be safeguarded from copying.

Ploughing through several copies of the latest weekly and monthly computer rags, I found to my surprise that not one article had been written for the Spectrum about program protection.

The only piece of information I could find was that POKE 23659,0 would stop people breaking into programs. "Great" I thought and rushed off to try it . . . . it didn't work. Why it didn't work will become clearer later.

On page 173 of the Spectrum manual you will find a complete list of the system variables (these are used by the system to update various pieces of information). Because these pieces of information need to be updated and changed, the system variables are held in RAM and not in ROM, therefore the programmer can also change them and this is where the system variables are of use to us.

Address 23659 DF SZ controls and keeps track of how many lines there are in the bottom part of the screen. If we POKE 23659,0 (telling the computer that there are no lines in the bottom part of the screen) we can stop anyone from breaking into a program. Why? Because when anyone presses the BREAK key and stops the program the computer tries to print up a ' L BREAK into program' message at the bottom part of the screen. However, because we have told the computer that there are no lines in the bottom part of the screen, it cannot print its message and a system crash occurs thus wiping the program from memory. You can see what happens if you type out the short program in listing 1.

There is however a slight catch . . . for this method to work an auto-run is required (you can make any BASIC program auto-run by SAVE-ing it in the form SAVE "PROG-NAME" LINE (first line number). Most budding pirates know that MERGE-ing a program will prevent an auto-run. Therefore we need a way of stopping or preventing the MERGE-ing routine. When a program is MERGE-ed the computer automatically places the line(s) with a number greater than 9999 (purists will point out that you cannot poke any part of memory with a number greater than 255 — to them I say go and look at chapter 24 of the Spectrum manual), we can cause a crash if the program does not auto-run after being LOAD-ed. It does not matter if you do not fully understand this . . . if you want to find out more, take a look at page 166 of the Spectrum manual which shows how a line in a BASIC program is stored. Anyway, the upshot of this is that the program cannot be broken into 'manually'. Listing 2 shows what to do.

Next comes the problem of tape-copying programs. There is however quite a simple solution to this problem . . . since the tape-copying program has to take up some part of memory, so if we can fill up ALL of the memory, we will at some stage overwrite the tape-copying program and prevent it from copying all of the program. Listing 3 shows how to do this. Some tape-copying programs reside in the printer buffer (you do not need to know what this is, but it is basically a part of RAM that is reserved for use by the printer). Listing 4 shows how to deal with such tape-copiers.

The last problem we have to deal with is that of tape-to-tape copying. Since the MoD has banned JCL DATA's tape-to-tape copying prevention device, there seems to be no way of preventing the program being copied. The way to get round this is to have a sheet of numbers (preferably in colour, or a series of colours) that must be typed in at the start of the program like at the beginning of JET SET WILLY. (Incidentally this method of protection is copyright by Software Projects.) If you are serious about protecting your programs then I'm sure you can come up with your own system.

LISTING 1

```
10 POKE 23659,0
20 PRINT AT 0,0; "TRY AND STOP THIS": BORDER RND*7: GOTO 20
```

LISTING 2

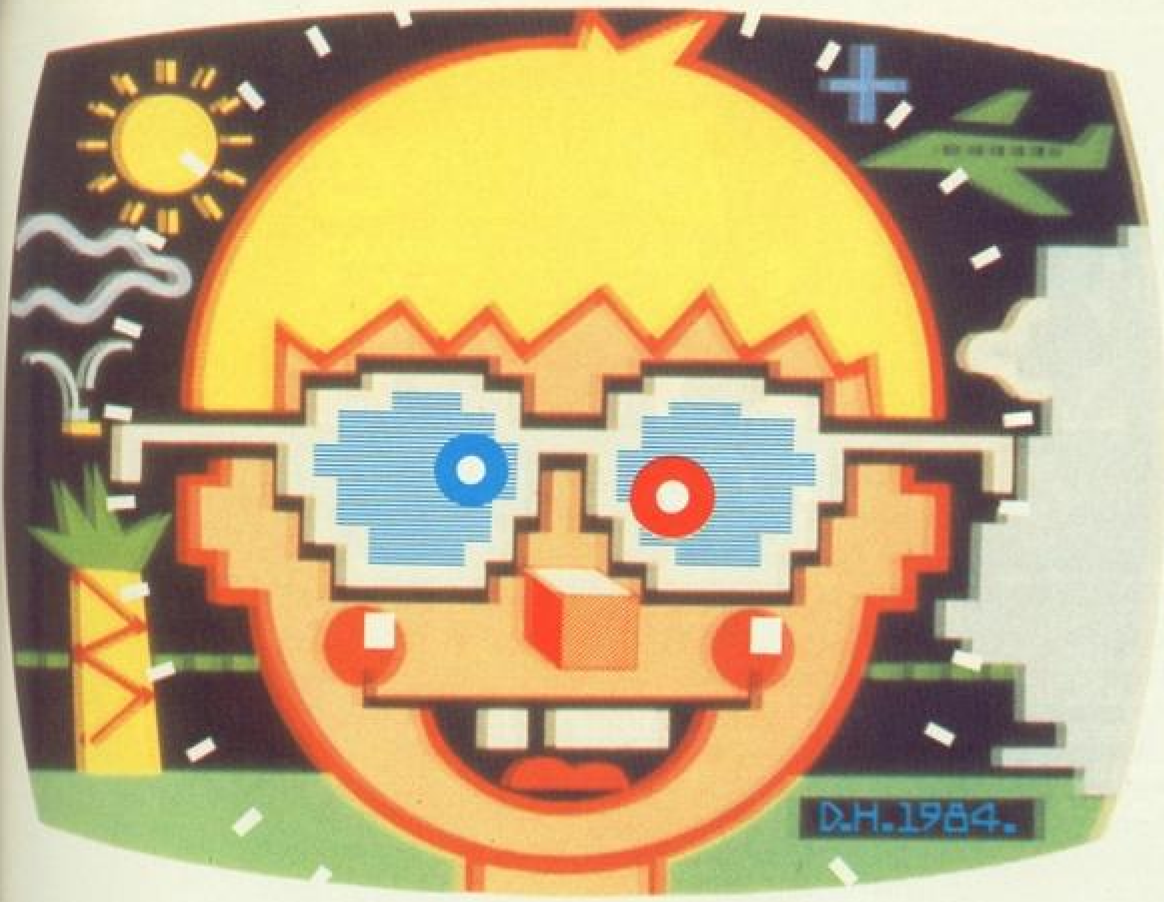
```
1 POKE 23659,0: POKE 23801,0
2 REM The program must then continue at line 2
3 REM If you CLS or INPUT or do anything that involves the bottom part of the screen, you must first temporarily reset the value of 23659 . . . eg POKE 23659, 2CLS: POKE 23659,0
4 REM When SAVE-ing your program, SAVE it in the following way . . . POKE 23801,255: SAVE "prog-name" LINE (first line number).
```

LISTING 3

```
1 REM Fill up any spare line numbers like this — 5000 REM
xxxxxxxxxxxxxxxxxxxxxxx
xxxxxxx (etc.)
```

LISTING 4

```
2 IF PEEK 23297<>0 THEN NEW: REM this should be in a loader program that loads in the main program
3 LOAD "": REM if basic or LOAD "" CODE if machine code.
```



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We have listed eight features of the new Enterprise computer. What we want you to do for this competition is place them in the order you consider they would most appeal to a home computer user.

Write the key letters of the eight features — in ink — in the spaces on the entry coupon. For example, if you think that "Built-in word processor" would be the most appealing then put 'J' in the first space. The letter of your next choice goes in the second space, and so on for all eight.

Complete the coupon with your name, age and address and then post your entry to: BIG K ENTERPRISE COMPETITION, 55 EWER STREET, LONDON SE99 6YP, to arrive by the closing date which is Friday, November 30, 1984.

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ADDRESS ....

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....

PLEASE CUT NEATLY AROUND THIS LINE

IMPORTANT

Before sealing, copy out — on the outside back of the envelope — the eight key letters in exactly the same order as they appear on your completed coupon. YOUR ENTRY MAY NOT BE CONSIDERED IF THIS IS NOT DONE. Do not enclose any correspondence or matter other than the entry coupon.

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The prize must be accepted as offered. There can be no alternative award, cash or otherwise. If the winner is aged under 18 then parental consent must be provided before the prize can be awarded.

Any entry received after the closing date will be disqualified as will any received mutilated, illegible, altered, incomplete or not complying with the rules and instructions exactly. No responsibility can be accepted for entries lost or delayed in the post or elsewhere. Proof of posting will not be accepted as proof of receipt.

The judges' decision and that of the Editor in all other matters affecting the competition will be final and legally binding. No correspondence can be entered into.

The competition is open to all readers in Great Britain, Northern Ireland, Eire, the Channel Islands and Isle of Man except employees (and their families) of IPC Magazines Ltd, the printers of BIG K or of Enterprise Computers.

The winners will be notified by post and the result published later in BIG K.

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Peter and Trevor are not archetypal Hampstead Men — but they can spot one at the drop of a Gucci bag. NICKY XIKLUNA meets the pair who have brought social climbing to the home micro . . .

Two Go MAD In Hampstead

IF THE Sloane Rangers Handbook managed to curl the stiff upper lip into a self-effacing smile — in *Hampstead* the message is clear — social climbers come out!

Hampstead is the software equivalent of the lush and clever coffee table book. It belongs in the genre of thinking man's fantasy — so far only occupied by two other real-life adventure games — *Denis Through The Looking Glass* and *The Cricklewood Incident*. Its designers think of themselves as market leaders in a new class of quasi-intellectual software. The game is a text-only adventure, and the quest is to make it to middle class Nirvana — Hampstead.

For those in far flung corners of the world — like Esher — who do not know, Hampstead does in fact exist. It lies on an enormous plateau (entirely the product of its occupants' imaginations) somewhere in North-West London. It is a collection of olde worlde buildings grouped next to a heath. It calls itself a 'village', despite a constant stream of heavy traffic (mostly Rolls Royces) that oozes down its centre. The thing to do in Hampstead is to stroll from cocktail to cappuccino, and once you've mastered the correct beautific smile, you can try casting it at the arty inhabitants, or fellow social climbers.

Once booted into the game, you'll find yourself ensconsed in a sleazy North London flat. 'Inv' shows 3-2-1 on the TV and a UB40. Exploration reveals a bedroom with such commercial prospects as a fungus farm and last night's biriani luxuriating in the wash basin. It's enough to kick the most easy-going slob onto the social mobility trail. From these humble beginnings you must go out and up. It's a highly literate game, and your way is fraught with as many wise-cracks as it is with pratfalls and red herrings.

Authors Trevor Lever and Peter Jones stress that it's not enough to cash your giro and head to Hampstead. You must rather ATTAIN Hampstead. Questioning revealed that neither author possessed a Hampstead address. But Peter's pink tie and Trevor's Mondrain-style, brightly coloured sweater prompted me to ask if they were on their way.

"Oh definitely. We want money, fame and a certain artiness. *Hampstead* the game will help. Of course, social climbing is not the most important thing in life — but it is the most satisfying if done properly."

How do you go about social climbing?

"In order to attain Hampstead in life as in the game you must think like Hampstead Man. Consider the objects of behaviour you'd need to be accepted in Hampstead. Here's a tip. What you leave behind is often as important as what you take with you. As a social climber — you run the risk of being exposed as a fraud. But exposure is not the only cause of death in *Hampstead*. You also risk terminal writer's cramp, being eaten by a venus fly-trap, or choking on muesli."

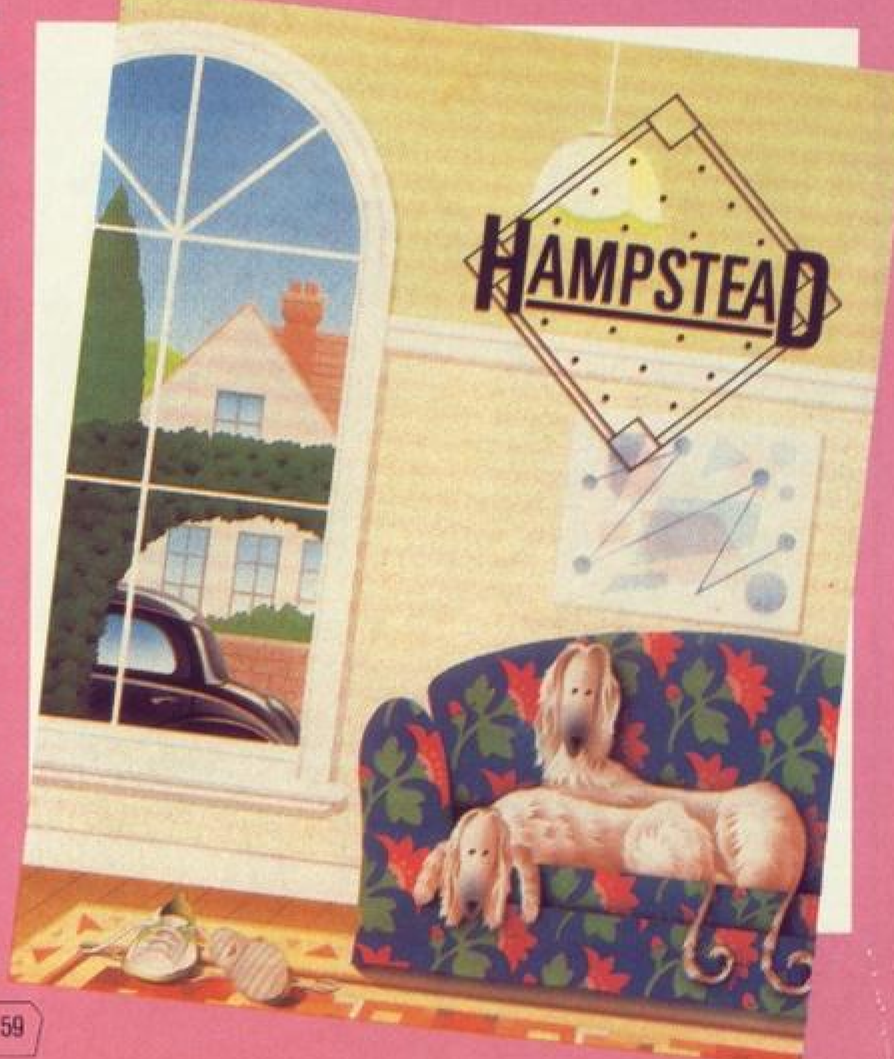
The best game strategy is to establish yourself before trying to make it to Hampstead. Try your luck in the industrial maze or take a train to another location. Approach Hampstead with caution. Gather your wealth, status and power, then hit Hampstead like a bullet. And no one will know of your roots.

The Peter/Trevor partnership goes back a long way. It even survived being heckled off stage in their Northern comedy double-act debut — 'Liptrop and Pode'. Trevor describes himself as the 'solid computer man' of the duo, whilst Peter is the 'aesthete with his head in the clouds'. Both are PR men in the computer and video industries respectively. Neither are programmers and *Hampstead* was written on SMART — a kind of managemental *Quill*, and improved by MH.

"Neither of us have any desire to program. The industry needs new ideas more than anything at present. We've got them — and there are plenty of people around to put them into practice."

Does this mean they don't think much of current adventure-ware? Peter hands me a card. "I see nothing special," it reads. The first of many that the duo had prepared for their interview. (I can only assume that Peter, himself a former journalist, has his own reasons for mistrusting the press.)

"It really is time for something new. We aim to create a series of real-life adventures without recourse to magic, spaceships or hand-to-hand combat. All that dragonslaying and treasure hunting can't go on forever."



ROB

...ON THE

Kim Aldis forsakes the fascinating world of wall-gazing to check out things that go clunk, whirr, beep in the night — and day. The Movits, D-I-Y robots with a difference.

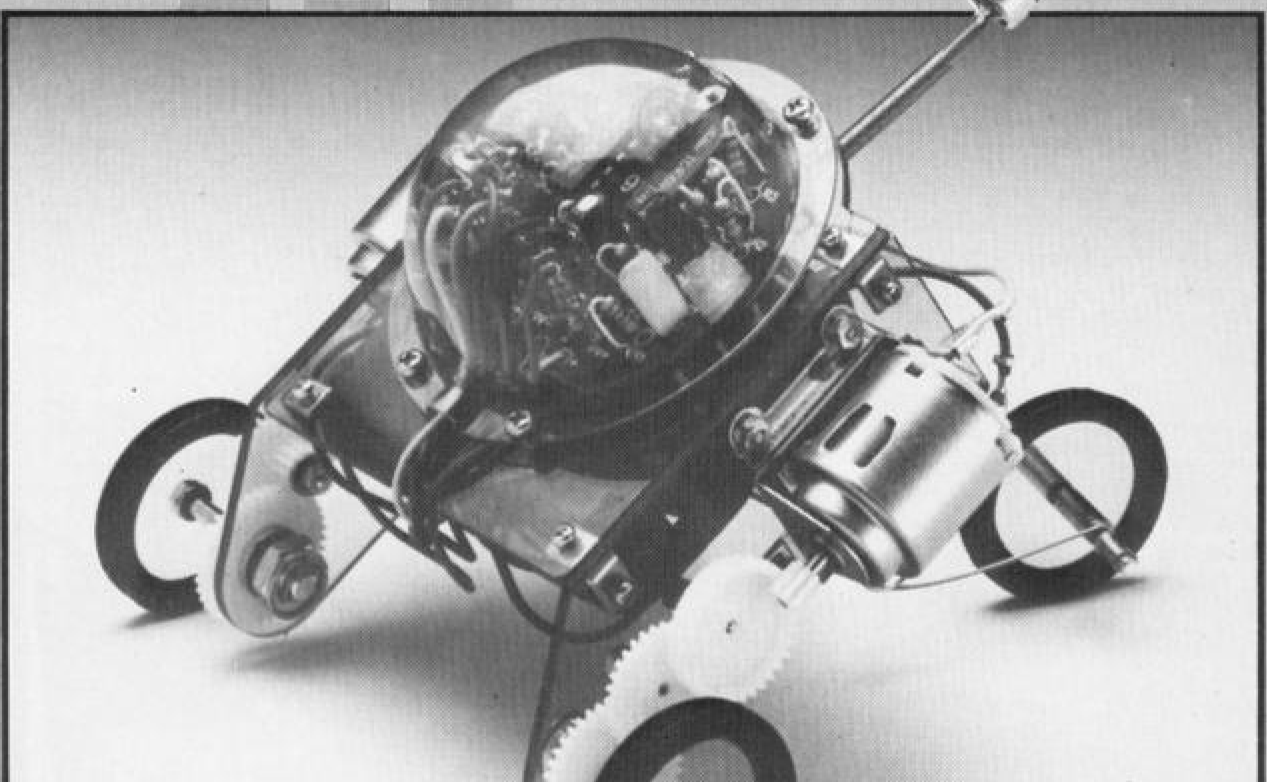
SO THERE I was, sitting in my room watching a blue ink stain on the wall, juggling the odds on how long it would take to slide down to the floor. Life gets exciting like that, especially in sunny Balham and today looked as though it was going to be as exciting as any. Suddenly, a small whirring noise grabbed my attention. I looked down and saw a small bubble-like object making its way across the floor towards me. This was annoying. To one with such earth-shattering ideas on his mind, an electric rat can be most distracting. I slid one toe under the front of it and casually flicked it against the wall. It bounced, once against the ink stain, then again off the floor and carried on about its business, finally finding solitude under the desk. Interesting. I returned my attention to the blot on the wall, but it was no good, the whirring dervish under the desk had wrecked any chance of serious concentration. I grabbed a stick to poke at it — after all it might bite — and it trundled out into view, apparently none the worse for its flying lesson.

What was it? It was a Movit, one of the five build-it-yourself beasties from Prism, and I wanted one. It could be the answer to the penicillin plant in the kitchen which had once been known as the washing up. I picked up the phone and before long five small bundles were winging their way to the BIG K offices.

Step one on the ladder to total mobility was to build them. I must admit to a certain amount of trepidation at this point. Previous experience of building this type of thing has been fraught with pitfalls usually ending with a pile of bits on one side and a hideous monster on the other. Far from it, the diagrams and instructions that came with all of the Movits were exceptionally clear and all the parts, although rather small and fiddly, were in clearly labelled packets. All that was needed was to take the right bit out of the right packet and put it in the right place as indicated on the diagram. The whole bunch took about a day to assemble and they all worked first time round.

There are five of them in all. The cheapest in the range at £9.99 is *Monkey* and it's probably the most amusing. The two hooked arms at the top allow it to be hung from a length of cord like a pair of Y-fronts on a washing line. Any sudden noise — a handclap works quite well — sends it swinging arm over arm along the cord. It keeps going for five seconds or so before stopping — and then sits there waiting for another noise.

Next came *Line Tracer II*. This is, wait for it, a line tracer, meaning it follows any dark line on a light floor or vice versa. It finds its way round using an optical sensor on its belly. The only problem here is finding a suitably flat floor. My kitchen floor boasts tasteful black and white tiles which gave it problems. What it does is to run on one of its two motors until it picks up a colour change on the floor. This causes the current motor to cut out



OTS MOVE

Mmmm! . . . these Roboburgers are a real tastee bite!



and the other to cut in making it change direction. If the corners are tighter than its turning circle (about 20 cms) it wanders off and does its own thing against the nearest wall. The kitchen floor nearly gave it a nervous breakdown. The sensor underneath is very sensitive, even picking up pencil marks on paper and it responds very quickly even on lines a good deal thinner than those recommended for use.

Piper Mouse is good for a laugh. It's a three-wheeled affair controlled by a whistle which takes it through a cycle of moves. The first blow of the whistle sets it scuttling off to the left then subsequent blows make it stop, go right, stop, go forward and then finally stop again, in that order. You have to be quite close (within about 3 metres) to make it respond and sometimes — if the microphone is facing the other way — you have to get even closer. Maybe someone will dream up a hearing aid for it. Aside from that the whistle is enough to drive a saint bananas. After about half an hour a pack of rather unfriendly stray dogs had gathered outside the kitchen window, casually dismembering anyone who happened past.

My favourite was the *Circular*. All the rest of the Movits use some real flash methods to control them but the Circular goes back to good old-fashioned radio control. Its appeal lies in its method of movement. As the name suggests, it's circular in shape and the wheels form two rims around the outside. The rims go round when it moves but the main bulk of the thing remains stationary giving the illusion that it's gliding along the floor. It's very sensitive about how rough the floor is. If it hits a bump it makes a kind of grinding noise and seizes up completely, at the same time it's very manoeuvrable, turning very fast and almost on a sixpence. Very nice.

Last, and most expensive, in the range is the *Memocon Crawler*, a sort of chopped-down turtle. It's programmed in steps by means of a small plug-in keyboard. Control is given over left, right and forward with the added bonus of a bleeper and a LED which can be activated at will. After programming, the keyboard is detached, a small button touched and it sets off about its business until you either switch it off or tread on it! It's a bit frustrating to find that it's not that accurate. Sending it in a straight line for more than a metre or so allows it to veer off course quite substantially. On the other hand it's not expensive when compared to some of the more sophisticatd turtles available and making it more accurate would mean either more accurate motors or some kind of positional feedback which in turn would make it more expensive. For my money I would rather see the price kept down.

The Movits are an interesting idea. Up until recently the emphasis has been on quality and accuracy rather than low cost and it's nice to see something more likely to appeal to those amongst us who aren't millionaires. I found them most absorbing at the building stage, the main drawback being that once built there's not much variety in what they can do. At the same time, because of the way they're made it would be quite possible to kind of jumble them all together into some sort of Frankenstein's monster. For the moment, though, it looks like my washing up stays furry. Unless, of course, someone wants to come round and do it for me.

PRICES:	
Monkey	£9.99
Line Tracer	£17.99
Piper Mouse	£19.99
Circular	£29.99
Memocon Crawler	£34.99

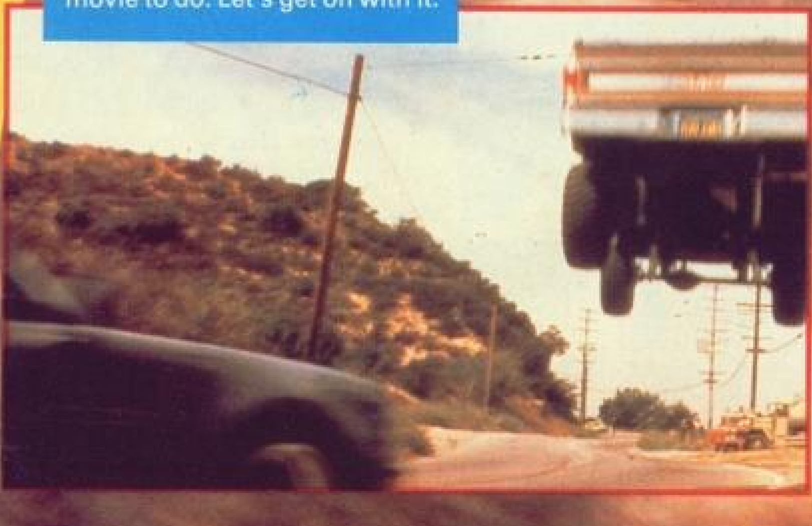

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C.B.M. 64 & VIC 20 16K

READY WHEN MR SEAVER





SCENE 1 Okay, sweeties, now I want absolute quiet on the set. Where's that Seavers stunt guy? Ah, there he is. Colt, baby, this is a piece of cake. All you've got to do is jump onto this train from the top of the brick tunnel, then run along the carriage roofs and jump down onto the track at the end. What did I tell you, big guy, it's easy peasy. Okay, this is take one and . . . action! That's it, Colt, onto the first carriage, the train's moving, getting faster. Move, baby, there's the tunnel coming up and . . . oh, oh. Pick him up, boys, we'll go again. Take two and . . . action! Okay, Colt, you're moving well this time. Jump the carriages, leap the gaps, don't fall between them . . . er, oops. Colt, babe, you know I love you but there's only three takes allowed for this scene and we've got a whole movie to do. Let's get on with it.



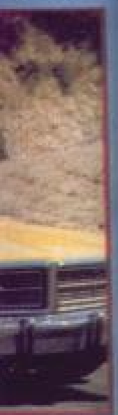




SCENE 2 Colt, honey, I know you're worried. Standing on top of a burning skyscraper is not my idea of fun either but don't worry, help is on the way. Okay, we're going for a take and . . . action! Watch out for the helicopter, Colt. Here it comes. Get ready to leap up and catch hold of the skids, the chopper will carry you to safety on the next rooftop. Now, get ready and jum . . . er, right. Yeah, Harry, you'd better circle round while Colt picks himself up. Take two and . . . action! Beautiful, Colt, you've grabbed the skids, you're dangling well, now wait till you're over the the next building and let go. Not yet – you're too high! Right, Harry, we'll wait till the medico patches him up and go again. Take three, Colt, the last one or the game's over for you.

N YOU ARE
RS

BIG K brings you an exclusive location report from the set of Elite's new computer game production of TV's THE FALL GUY . . .





SCENE 3

What's all that snow up there? Why, it's an avalanche effect, Colt, my little icicle. What would a mountain scene be without an avalanche? All you have to do once it starts is to get to safety without getting swept away. You must remember doing something like this on that 'Bionic Guy' show you worked on. Right, quiet on the set and . . . action! That's it, Colt, move quickly. Cue the avalanche! Hurry, Colt, it's coming up fast and . . . oh, well. Send in the St. Bernard, we'll find Colt by morning.

Colt, sweetness, you must know by now that we've only got three takes on each of these scenes, you've got to get it right first time. There's still the broken bridge over the flooded river, wing walking between two planes and the raging inferno to escape, to name but a few. You may think it's only a game but some of us find it deadly serious.



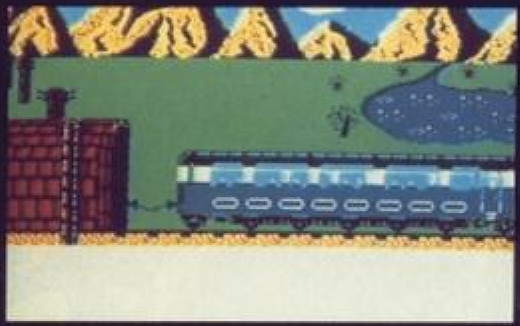
et ready
eah, Har-
le round
f up. Take
Beautiful,
the skids,
now wait
the next
lot yet —
nt, Harry,
o patches
ake three,
e game's







Screen shots from pre-production Spectrum version of The Fall Guy. Below, screen 1, scene 1 — the train stunt.



A CRITIC REPORTS

I viewed this new production of *The Fall Guy* with interest. Obviously a spin-off from such a popular television series would attract a lot of attention from fans of the stunt man and modern-day bounty hunter. But would they appreciate the depiction of their hero as a computer game character?

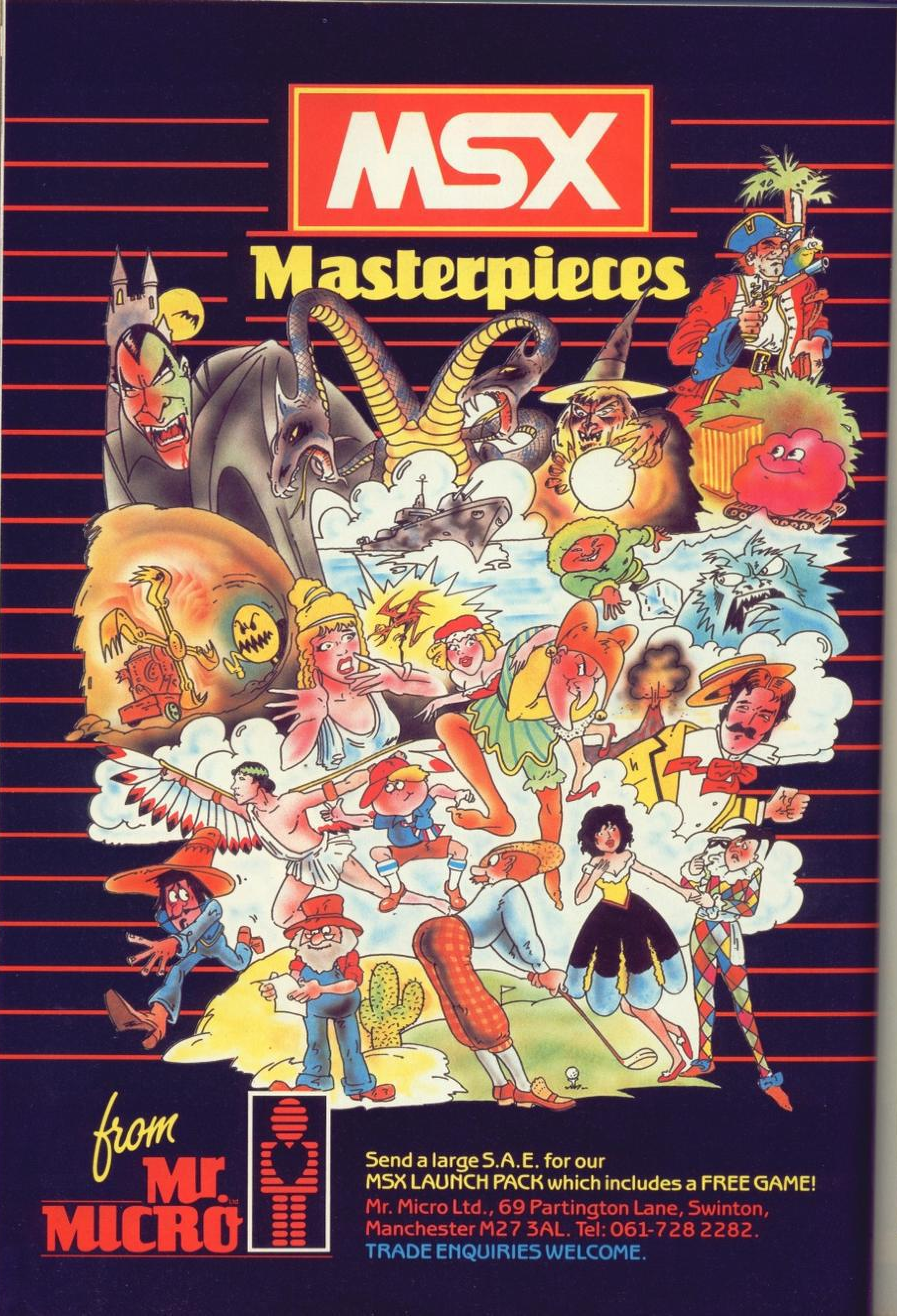
The player is presented with a series of situations worthy of the Big Guy himself, which have to be worked through. However, the plotline becomes somewhat pedantic after a while as stunt follows stunt. The bounty hunting activities of Colt Seavers are only exploited in the latter stages of the dozen screens available.

The graphics present the player with constantly changing scenarios and are of a high quality. Indeed the whole game stands up well to the many other TV adaptations that are proliferating across computer screens at present.

I think *The Fall Guy* has definite box office potential but I reserve my final judgement for the moment. As of writing the production has obviously run over schedule because the producers were only able to show me a rough cut. I look forward to seeing the completed version.

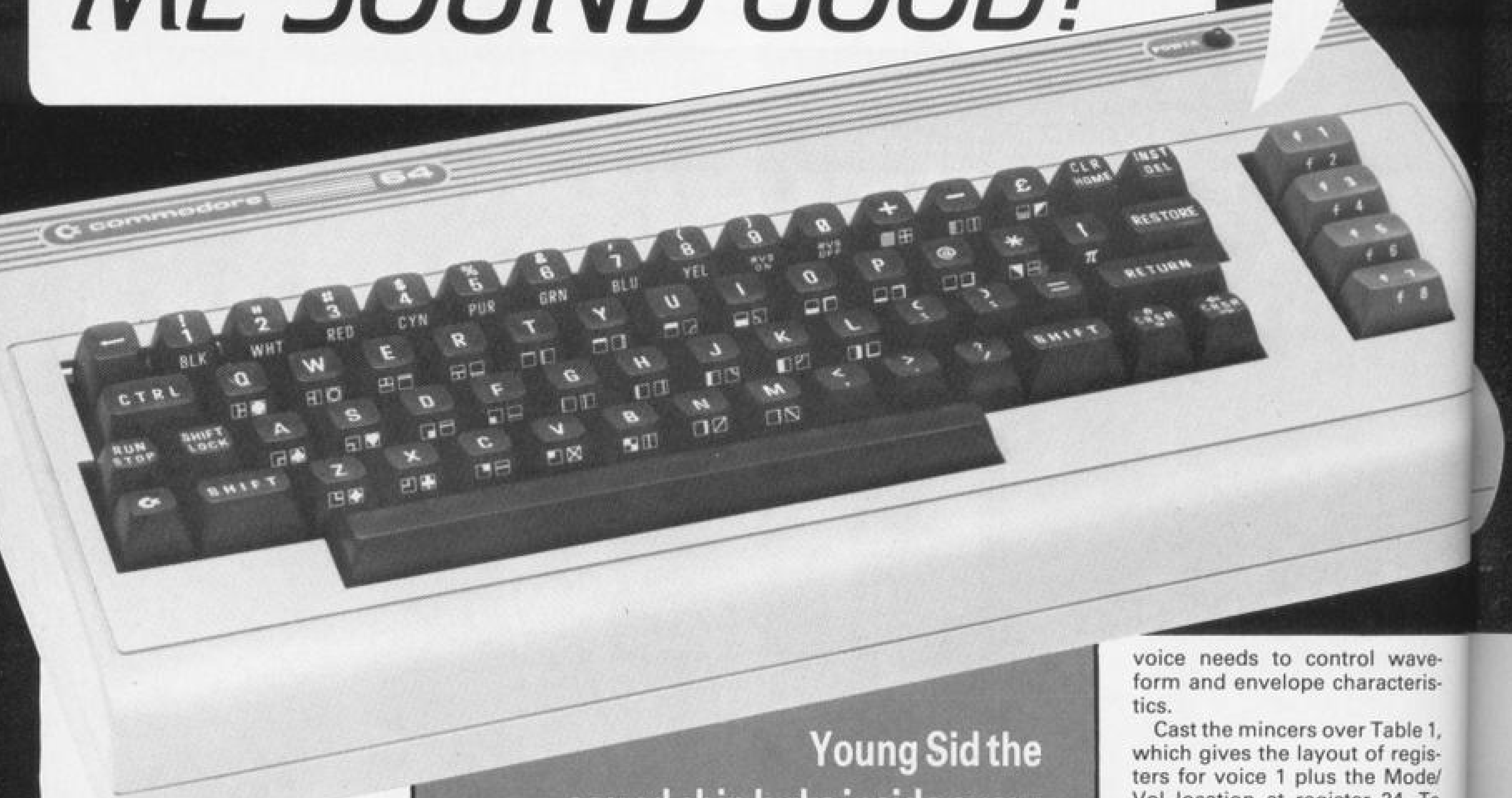
THE Officially Licensed Computer Game Version of the TWENTIETH CENTURY FOX Television series featuring Lee Majors as THE FALL GUY. An ELITE Production for the 48K Spectrum (£6.95) and Commodore 64 (£7.95, £9.95 disc).

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HI, I'M SID! YOU CAN MAKE ME SOUND GOOD!



Young Sid the sound chip lurks inside every Commodore 64 and is, according to KIM ALDIS, '. . . more powerful than that of any other home computer.' But how do you get great sound out of it? Read on . . .

SOUND ON the Commodore is not hard. Who said that? Confine him to the nether regions of the North Sea with his feet encased in concrete and a knot in his neck. Nothing you do on the Commodore is particularly easy but you can make it easier. If you buckle down and approach the problem in an organised manner the machine is capable of some extraordinary things. Take sound for instance. Young Sid the sound chip is probably more powerful and versatile than that of any other home computer. Three voices, a choice of four waveforms, three types of filtering, ring modulation and envelope control all combine to give control over the type of sound you can make. On rare occasions it's even been known for Sidney to speak.

The great secret to easy use of the SID chip is an understanding of the seemingly vast number of control registers and a reasonable knowledge of how sound works.

Let's have a look at the nature of sound first. The tonal quality of a noise is governed largely by its waveform. A detailed explanation would fill a fair-sized book but for now it's enough to accept that a waveform is a graphical plot of amplitude (how loud) against time (diag. 1). The Commodore can generate four different waveforms: sine, sawtooth, pulse and noise. A quick butchers at diag. 2 gives an idea of how they get their names and the sort of noise they make. The noise waveform is just a mishmash of random pulses and sounds like an elephant doing what elephants do best.

Now the sound envelope. This is what governs how a sound starts, what it does when it's sounding and how it dies away. The envelope is split into four parts (diag. 3). ATTACK, the rate at which the sound builds to its peak volume; DECAY, the rate it falls to the SUSTAIN level which is the main part of the sound. Finally RELEASE which is how long the sound takes to die away.

So now you know all about sound. Question is how to teach the Commodore about it? The chip responsible for the various burps, belches or whatever that the 64 can make is SID (Sound Interface Device on formal occasions). SID consists of a rather daunting array of 29 registers starting at location 54272, 27 dedicated to making sound, the other two used for analogue joysticks.

O.K., you've got 27 locations to muck about with, what do you do. First Law of Commodore Computing:

PANIC

Feel better? Now look at the problem logically. To start off we'll only look at simple sounds using one voice. For this you only need eight registers: Mode/Vol (don't worry about Mode, we'll get to that at a later date) and the seven registers each voice needs to control waveform and envelope characteristics.

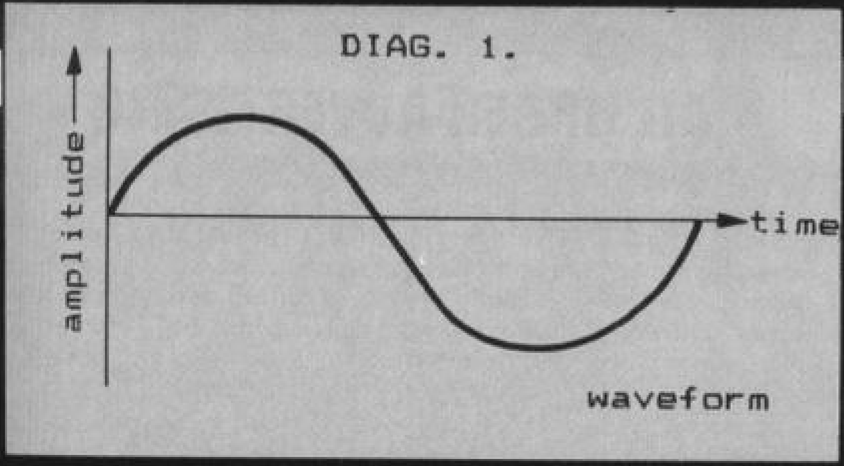
Cast the mincers over Table 1, which gives the layout of registers for voice 1 plus the Mode/Vol location at register 24. To save memory space The Big C tends to split some registers into two and use them as a sort of dual purpose register. Mode/Vol (register 24) is one of these, check the lower four bits control volume for all three voices which means a total of 16 settings, 0 to 15. The four high bits are for filtering which is for doublebrains so forget them for now.

Working through the rest of the registers for voice 1, frequency is just a fancy word for how high or low the note sounds. This uses two registers: frequency low and frequency high. The best way of looking at these is to think of the two as a double-sized byte (a 'word') as in diag. 4. This arrangement means you can whop a bigger number into the frequency of the note and so get a wider range of sound.

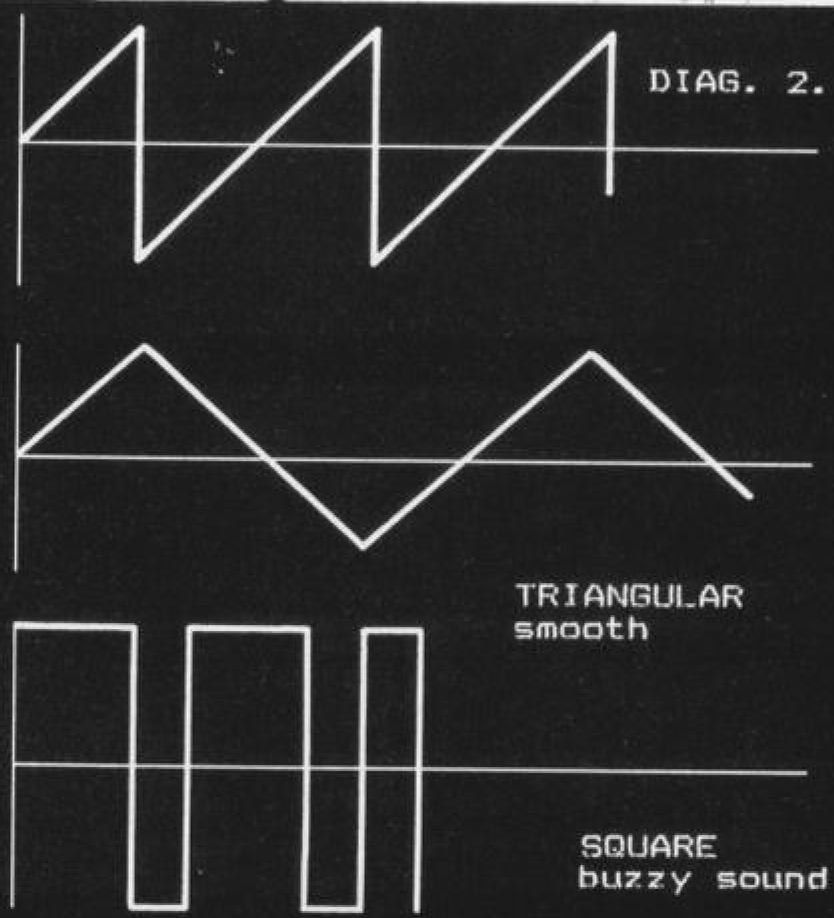
Pulse width high and low operate on the same principle but control the pulse width for a square wave. We'll come back to that later.

The next register gets interesting. Look at diag. 5. The top four bits of the Control register dictate the waveform or type of sound you get. Don't worry about bits 1 to 3, they get used for things like ring modulation and synchronising with other voices. Bit 0, however, does concern us. This is the GATE bit which switches the envelope gener-

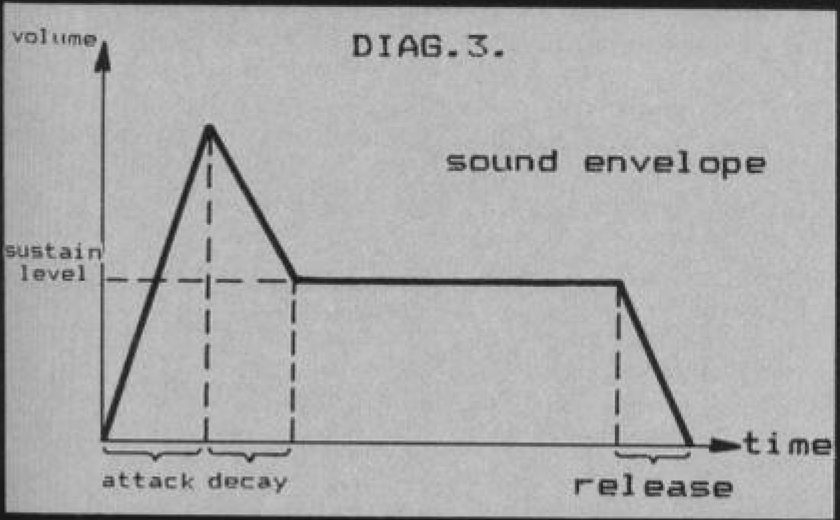
DIAG. 1.



DIAG. 2.



DIAG.3.



ator in and out. When this bit is set the envelope generator is 'gated' or triggered and the ATTACK/DECAY/SUSTAIN cycle of the envelope is started. Clearing the bit initiates the RELEASE cycle and the sound starts to die away. Easy, innit? Set the bit to start the sound, clear the bit to stop it. But don't forget to set the waveform first.

Before you can start and stop an envelope, you need an envelope to start and stop which brings us to the last two registers in Table 1, ATTACK/DECAY and SUSTAIN/RELEASE. You guessed it, they contain the envelope parameters. Again, the Commodore does a bit of space saving by cramming two parameters to a byte as in diag. 6.

Once you've got that lot clear in your mind the rest is fairly straightforward. The basic procedure for making a sound runs roughly as follows:

1. POKE the frequency (regs. 1 and 2)
2. Then the waveform (reg. 4)
3. Now set up the envelope parameters in regs. 5 and 6
4. POKE a volume into reg. 24
5. Set the GATE bit in reg. 4
6. Go into a FOR . . . NEXT loop for as long as you want the sound to last and then —
7. Clear the GATE bit.

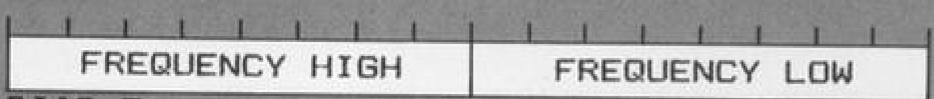
That's what you do and Prog. 1 is how you do it. Changing the values in lines 30 to 60 will give you different noises.

Lastly, we come back to the square wave pulse. You may well have tried to run Prog. 1 with a square wave and got nothing from it. That's because a pulse width has to be put into registers 2 and 3. The pulse width is the width of a square wave as shown in diag. 7. So go ahead and put one in. If you've understood most of what's gone on so far you should have no problem in adapting prog. 1.

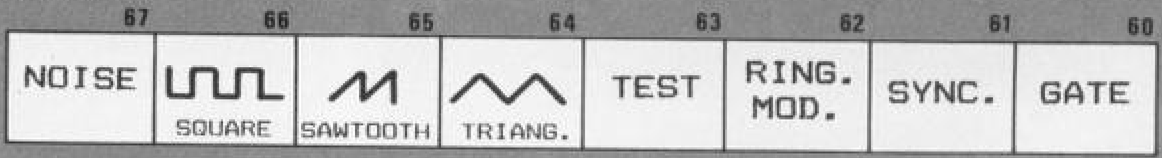
In case you're wondering what the other 21 registers have got to do with all this, bear in mind that there are more voices so registers 0 to 6 are duplicated over registers 7 to 20. The rest are for filtering of sound and reading the analogue port. I'll cover these later in the series.

As an added bonus (value for money is the name of the game in this mag), prog. 2 is a short utility for making sounds. All the sound parameters are displayed as you change them and instructions are displayed on the screen, so go ahead and keep the neighbours awake for a while. They've got to get up in the morning anyway, so who cares?

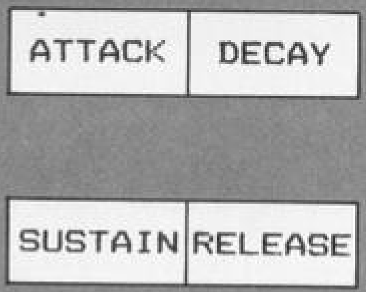
DIAG.4



DIAG.5



DIAG.6



The Envelope Registers

DIAG.7 Square Wave

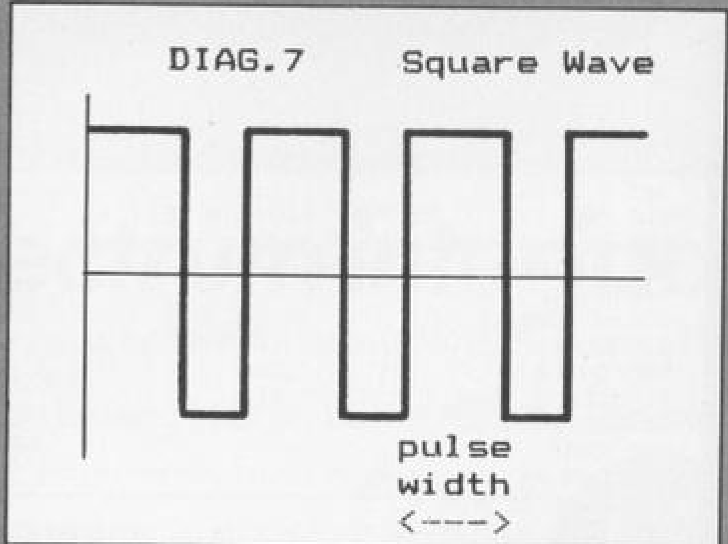


Table 1

Register	Register name
0	Frequency Low
1	Frequency High
2	Pulse Width Low
3	Pulse Width High
4	Control Register
5	Attack/Decay
6	Sustain/Release
24	Mode/Vol

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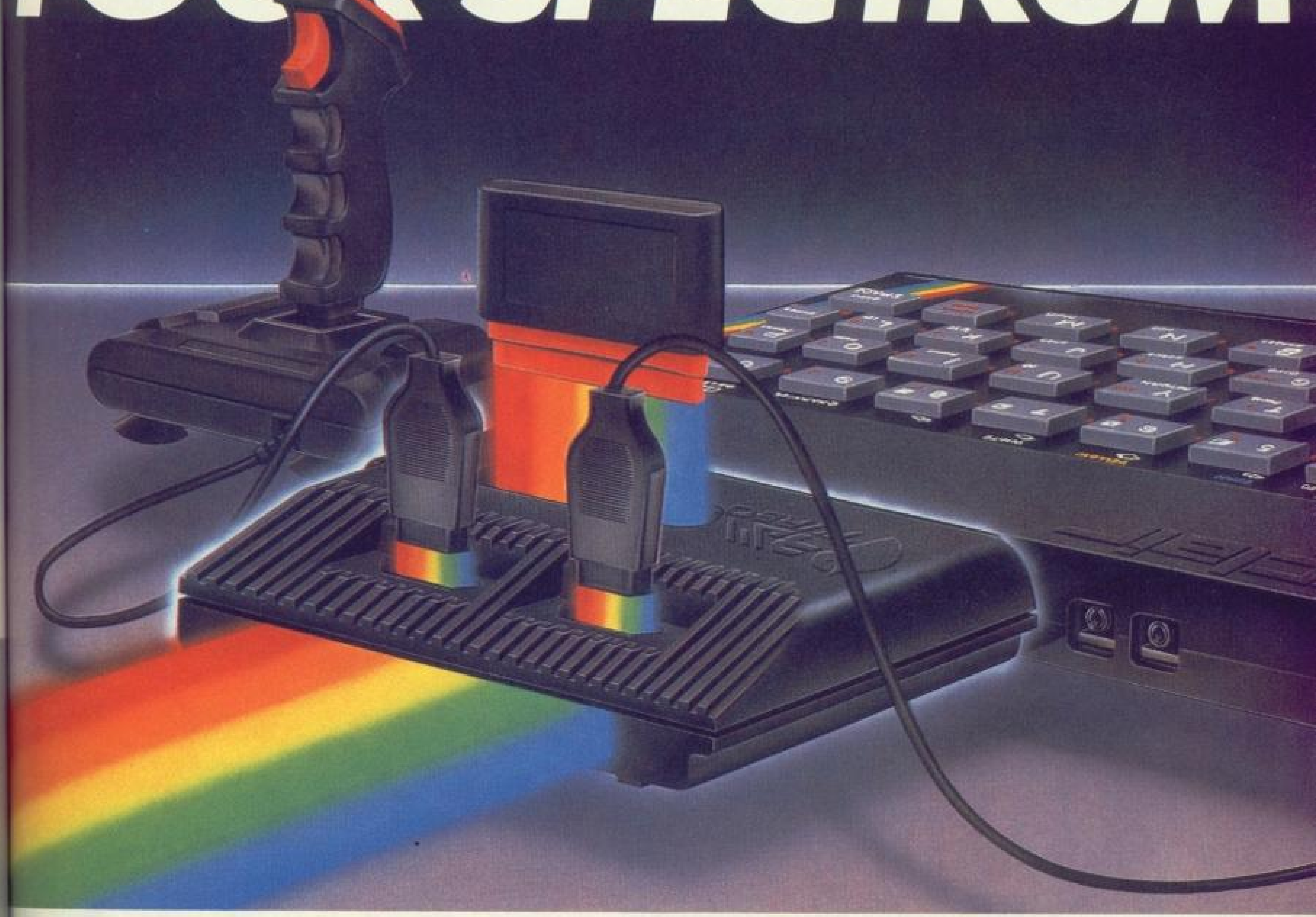
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CONTINUED FROM 69


```
5 REM%%%%%%%%%%%%%%%%%%%%%%%%%
10 REM %%%% SOUNDMAKER %%%%%
20 REM%%%%%%%%%%%%%%%%%%%%%%%%
30 GOSUB 500: REM SET UP VARIABLES
40 KE=PEEK(197)
50 IF KE=60 THEN GOSUB 600
60 GOSUB 800
70 GOTO40
80 REM
90 REM%%%%%%%%%% SET VARIABLES %%%%%%%%%%
500 SID=54272
510 FOR I=0 TO 29:POKE SID+I,0:NEXT
520 AT=8:DC=10:SU=15:RL=10
530 FL=100:FH=10:PL=100:PH=0
540 WV=16
550 NL=500:VL=15
555 SN=1
556 SN$(0)="UP":SN$(1)="DOWN"
560 GOSUB 2000:REM SET SCREEN
570 RETURN
580 REM
590 REM %%%%%%% MAKE A SOUND %%%%%%%%%%%
600 POKE SID+24,VL
605 POKE SID+24,VL
606 AD=A2+DC:SR=S2+RL
607 POKE SID+2,PL:POKE SID+3,PH
610 POKE SID,FL:POKE SID+1,FH
640 POKE SID+5,AD:POKE SID+6,SR
650 POKE SID+4,WV+1
660 FOR I=0 TO NL:NEXT
670 POKE SID+4,WV
680 RETURN
690 REM
700 REM%%%%%%% UPDATE VARIABLES %%%%%%%%
800 IF KE=4 THEN AT=(AT+1)*ABS(AT<>15)
810 IF KE=5 THEN DC=(DC+1)*ABS(DC<>15)
820 IF KE=6 THEN SU=(SU+1)*ABS(SU<>15)
830 IF KE=3 THEN RL=(RL+1)*ABS(RL<>15)
840 A2=((AT AND 1)+(AT AND 2)+(AT AND 4)
+(AT AND 8))*16:IF A2=0 THEN A2=16
850 S2=((SU AND 1)+(SU AND 2)+(SU AND 4)
+(SU AND 8))*16:IF S2=0 THEN S2=16
870 GOSUB 1500:REM PRINT OUT PARAMETERS
880 IF KE=9 THEN WV=(WV*2)*ABS(WV<>128)
890 IF WV=0 THEN WV=16
900 IF KE=41 THEN PL=PL+SN*10:IFPL>=255
THEN PL=0:PH=PH+SN
1000 IF PH>=16 THEN PH=16
1002 IF PL<0 THEN PL=255:PH=PH-1
1003 IF PH<=0 THEN PH=0
1010 IF KE=40 THEN SN=-SN
1020 IF KE=21 THEN FL=FL+SN*10
1030 IF FL>=255 THEN FL=0:FH=FH+SN
1031 IF FL<0 THEN FL=255:FH=FH-1
1040 IF FH>=255 THEN FH=255
1041 IF FH<=0 THEN FH=0
1050 RETURN
1060 REM
1070 REM%%%%%% PRINT PARAMETERS %%%%%%%%
1500 PRINT"S":SN$(ABS(SN=-1))
1505 PRINT TAB(10);AT;CHR$(157);"   ";TAB
(30);DC;CHR$(157);"  "
1510 PRINT:PRINT TAB(10);SU;CHR$(157);"
";TAB(30);RL;CHR$(157);"  "
1520 PRINT:PRINT TAB(10);FH;CHR$(157);"
";TAB(30);FL;CHR$(157);"  "
1530 PRINT:PRINT TAB(10);PH;CHR$(157);"
";TAB(30);PL;CHR$(157);"  "
1540 PRINT:PRINT TAB(10);WV;CHR$(157);"
"
1550 RETURN
1560 REM
1570 REM%%%%% INITIALISE SCREEN %%%%%%%%
2000 PRINT"s":REM CLR/HOME
2010 PRINT"F1-ATTACK          F3-DECAY"
2020 PRINT:PRINT"F5-SUSTAIN          F7-RE
LEASE"
2030 PRINT:PRINT"  F-HIGH                F-L
O"
2040 PRINT:PRINT"  P-HIGH                P-L
O"
2050 PRINT:PRINT"  WAVEFORM "
2060 PRINT:PRINT"cccccccccccccccccccccccc
cccccccccccccccc"
2070 PRINT:PRINT" USE W TO ALTER WAVEFOR
M,":PRINT:PRINT" P TO ALTER PULSE"
2080 PRINT:PRINT" F TO ALTER FREQUENCY"
2090 PRINT:PRINT" FUNCTION KEYS TO ALTER
 ENVELOPE"
2100 PRINT:PRINT" SPACE TO PLAY A NOTE"
2110 PRINT:PRINT"+ TO INCREMENT OR DECRE
MENT"
2120 RETURN
```

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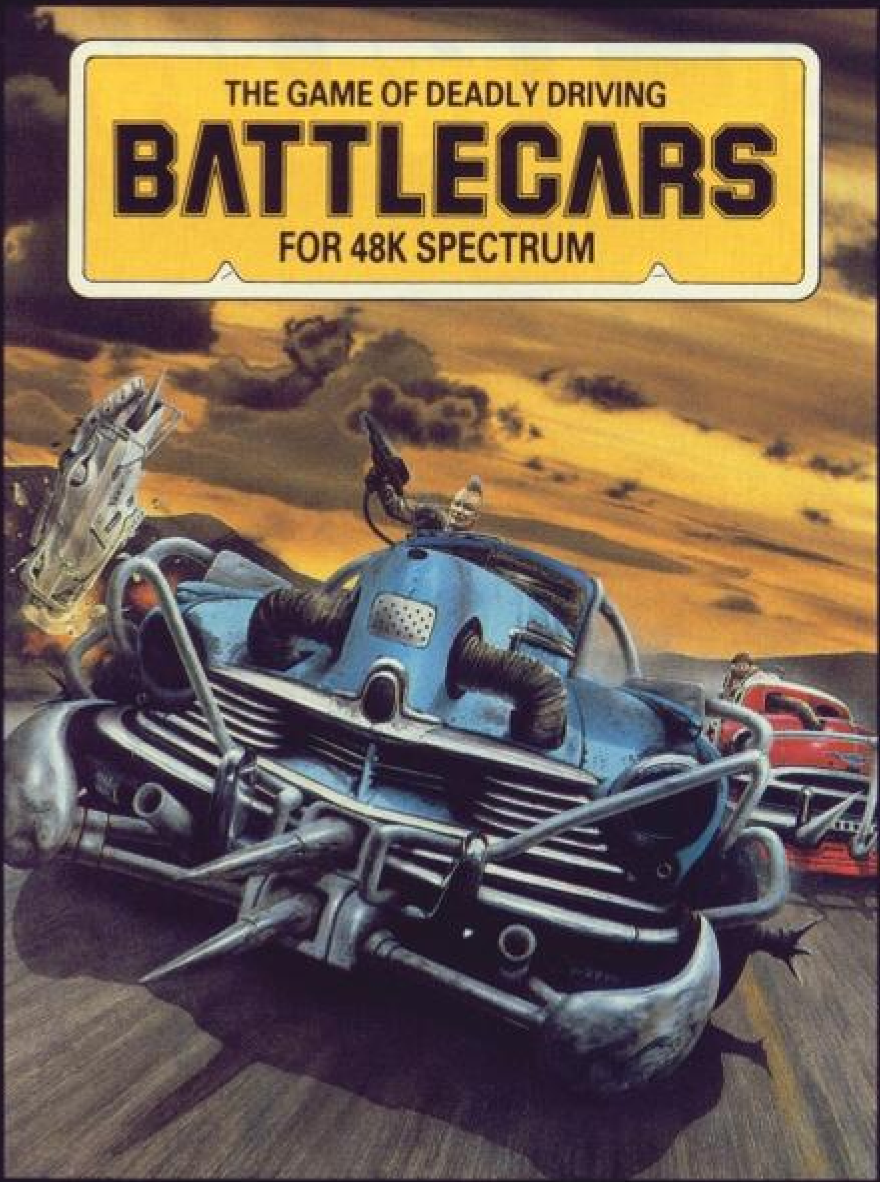
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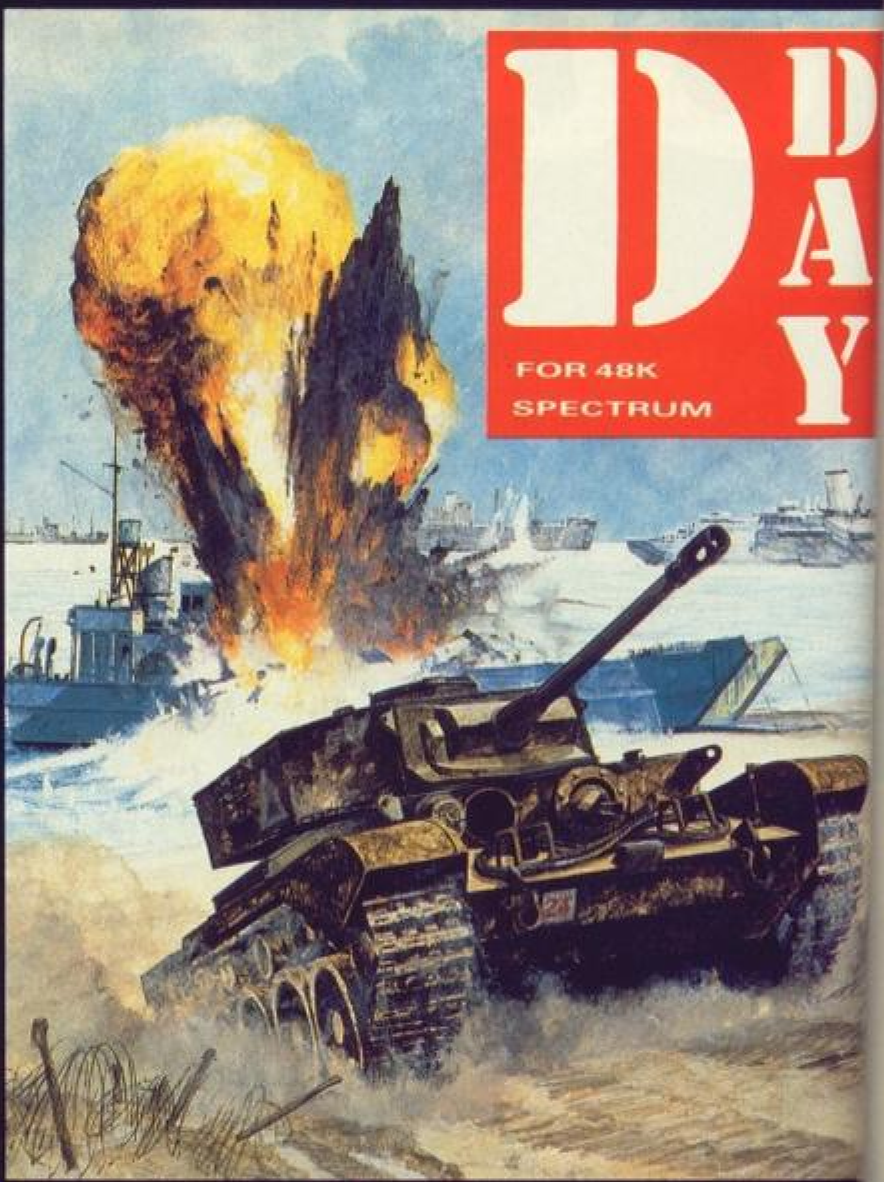
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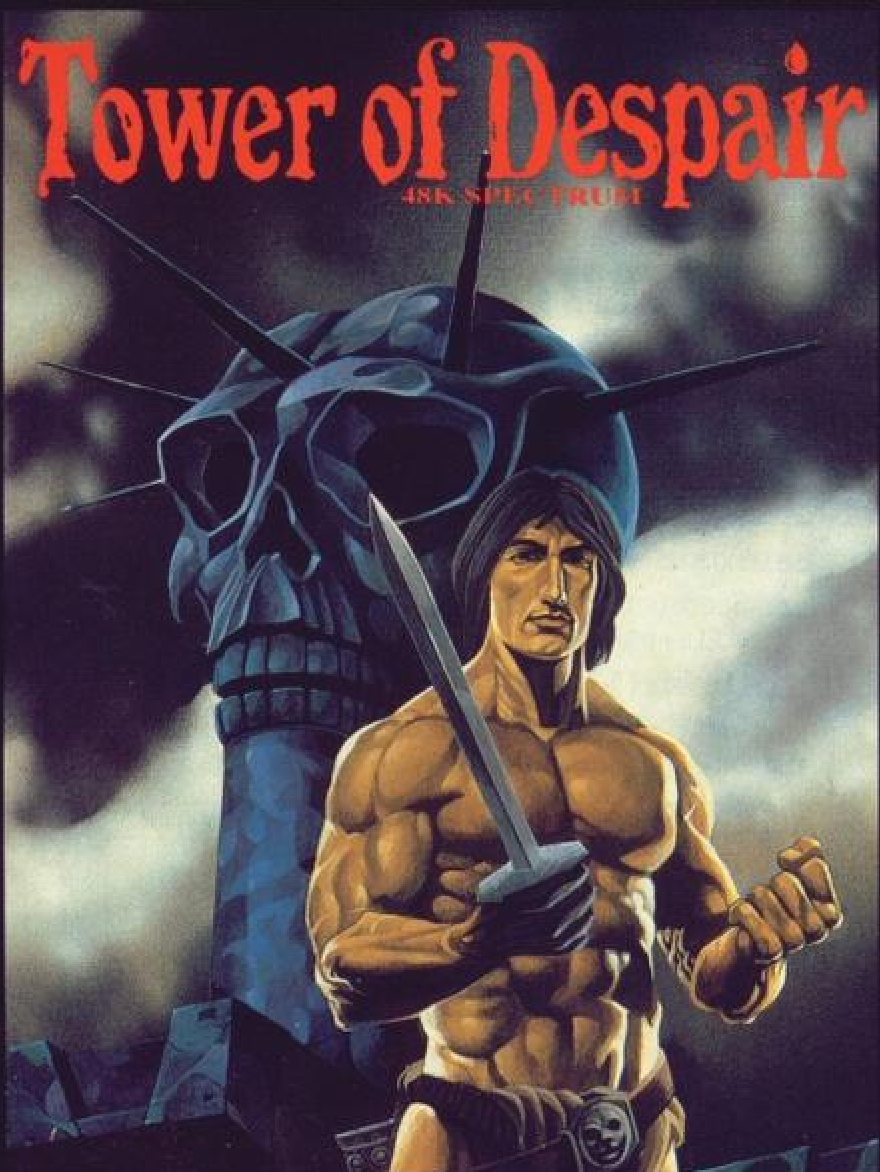
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FASTEST DRAW IN N.W.11

. . . Is KIM ALDIS, who's thrown out his paint-daubed smock, his palette (and his onions) and produced a snappy and versatile CAD (Computer Aided Design) package for BIG K Beeb owners.
You've heard of MAGRITTE? Neither has Aldis . . .



CAD STANDS for 'Computer Aided Design'. Put more simply it means drawing pictures with a computer and it's a fun thing to mess around with.

Looking around the racks of Rip-Off Software Inc. it doesn't take a great deal of savvy to suss that every CAD package available is 'powerful, easy to use and versatile'. They also cost over twenty crisp oncers and they're usually in BASIC. Which is one reason for the existence of *Graph-Pac.*

First of all don't be put off it by the voluminous instructions. For the most part the only keys needed are the red function keys so all you need to do is slip a strip (poetry, geddit?) of key names under the plastic bit and there should be no problem. Any other keys are fairly obvious; COPY saves or loads a screen from tape, Q (for quit) gets you out of the program, etc.

The program centres around a technique known as 'Rubber Banding'. An animated line stretches from a fixed point to a cursor whose position is controlled by a joystick. Once you're happy with the position of the line press the fire button and the line is 'fixed' in position, the new fixed point being moved to the cursor position. If you don't have a joystick then invest in one. Believe me it's worth it for speed and ease of use.

Looking at the function keys first, starting from the top and working down:

F9 is used to draw ellipses. The joystick is used to control a rectangle which defines the limits of the major and minor axes of an ellipse (which is a flash way of saying an ellipse fits in the box). Get the rectangle to the size of ellipse you want and press the fire button. The rectangle disappears and an ellipse takes its place. You can have the ellipse rotated left or right, using the '<' and '>' keys to rotate the box before it's fixed and the origin (at the centre) can be moved along the x and y axes using the cursor keys.

Rectangles are drawn using the f8 key. Exactly the same as the ellipse key but a rectangle is produced. It can be rotated and have its origin moved in the same way as the ellipse.

Function key 7 is used to position text on the screen. After pressing f7 just enter text which will appear at the cursor position. Move it around with the joystick and use the fire button to fix it. A useful point to remember is that CTRL H, I, J and K can be used to move back, forward, down and up respectively. This means you can have vertical or diagonal text. If you've defined characters using the character definer (more of that later) these are in the function keys in the order you defined them (f0 first character, f1 second etc.). Just press them, you'll see.

Logically displayed colours can be changed using f6. This uses the VDU19 command and might need some experimentation. The routine expects numbers which must be input using the function keys. A list of logical colours is shown on page 165 of the *User Guide*. I'm sure you don't need wet nursing through it; just follow the prompts as they appear.

Coordinates of the cursor, current rubber band length and angle from the horizontal can be displayed using f5. Useful for accurate positioning of lines.

Line colour (and fill colour, more later) is changed using f4. Again this expects a number from the function keys. Check page 165 of the BBC Bible for the numbers of the colours.

F3 gives you an eraser. Be careful with this if you're working on something important. What happens is the cursor is replaced by a small triangular shape. This systematically demolishes anything it passes over in much the same way as a pencil eraser. Once it goes you can't get it back. Press the fire button to get rid of it.

After you've mucked about with the rubber band for a while you'll probably realise it's a pain having each line connected to the previous key. Key f2 solves this by turning the line on and off. Once the line is off move the cursor to a new position and press the fire button. Turning the line on again will show that the new start position is the cursor position. (Sounds confusing? Try it, you'll soon get the hang of it). It's a good idea to have the cursor on while you're doing this so you know where you are. The cursor is toggled on and off by f1.

Function key 0 is fun. This is the fill routine. Position the cursor anywhere inside a shape and press f0. The shape fills with the current line colour. The routine only fills black areas and be careful that the area you fill is fully bounded by lines or blocks of colour. If not the fill will bleed over the screen boundaries and tie itself in knots. If this happens just wait a while, it gets fed up after ten minutes or so and stops but it's a real pain waiting.

That just about ties up the function keys, which leaves us with a few others dotted about the keyboard. Pressing ESCAPE clears the screen after checking that you really mean it. If you do, press 'Y' when it asks you; if not, any other key will do. The cursor keys are used for moving the origin of the rubber band and COPY takes you into load/save to preserve your precious masterpieces. Just follow the prompts. Pressing ESCAPE will abort.

Unfortunately there was no room left for a printer dump and anyway, different people have different printers. Pressing 'Q' lets you out of the program without destroying the screen image so you can run your own printer dump. Typing 'RUN' gets you back into Graph-Pac.

The 'TAB' key lets you define characters which can be put on the screen in text mode (f7). As mentioned earlier your characters are stored in the function keys in the order you define them. The procedure is simple enough, after pressing the 'TAB' key you will see a small area in the bottom right of the screen with a small cursor in it. Use the cursor keys to move the cursor around and the 'SPACE' key to make or unmake a mark (each character is made of an eight by eight matrix). When you are happy with your design press the 'TAB' key again.

Finally there is a textured fill, of sorts, which is rather fun to muck about with. It's toggled in and out by pressing 'T' (for texture) and all it does is stop the rubber band from erasing itself before it moves. The result is a rather pleasing moiré effect.

The listing is in two parts. Type in the first part and save it. Type in the second part, save it as 'GP2' after the first part and run the first part which chains the second part.

And that just about sums it up. If it seems confusing don't worry — it's a lot easier than it looks.

LISTING 1

```
>WIDTHc
    5REM" ****************************
   10REM" ******** GRAPH_PAC *********
   20REM" ****** (C) KIM ALDIS *******
   30REM" ********** 1984 ***********
   35REM" ****************************
   50MODE7
   60PROCtitle
   70PROCmode
   80MODEmode%
   90PROCsetscr
  100PAGE=&D00:CHAIN"GP2"
  120REM"
  130DEFPROCsetscr
  140*FX4,2
  150*TV1
  160*FX219,224
  170*FX225,128
  180*FX226,138
  190*FX227,148
  200*FX228,158
  205*FX219,127
  210*FX229,1
  220VDU23,255,3,15,63,255,255,63,15,3,2
3,254,224,224,224,0,0,0,0,0,23,253,24,24
,0,195,195,0,24,24
  230VDU23;8202;0;0;0;28,0,31,?&30A,29,2
4,0;96;1279;1023;
  240COLOUR131:COLOUR0:GCOL3,3:CLS
  260ENDPROC
  270REM"
  280DEFPROCmode
  290PRINTTAB(11,15)CHR$130;"Screen Mode
";:INPUT,mode%
  300IF mode%=3 OR mode%=6 OR mode%=7 PR
INTTAB(9,15)CHR$(129)+CHR$(136)"TEXT ONL
Y MODE":VDU7:GOTO290
  310ENDPROC
  320REM"
  330DEFPROCtitle
  340FOR I%=0 TO 1
  350PRINTTAB(11,5+I%)CHR$(141)+CHR$(131
+I%),"GRAPH-PAC"
  360NEXT
  370PRINTTAB(8,8)CHR$(131),"(C) KIM ALD
IS 1984"
  380ENDPROC
```

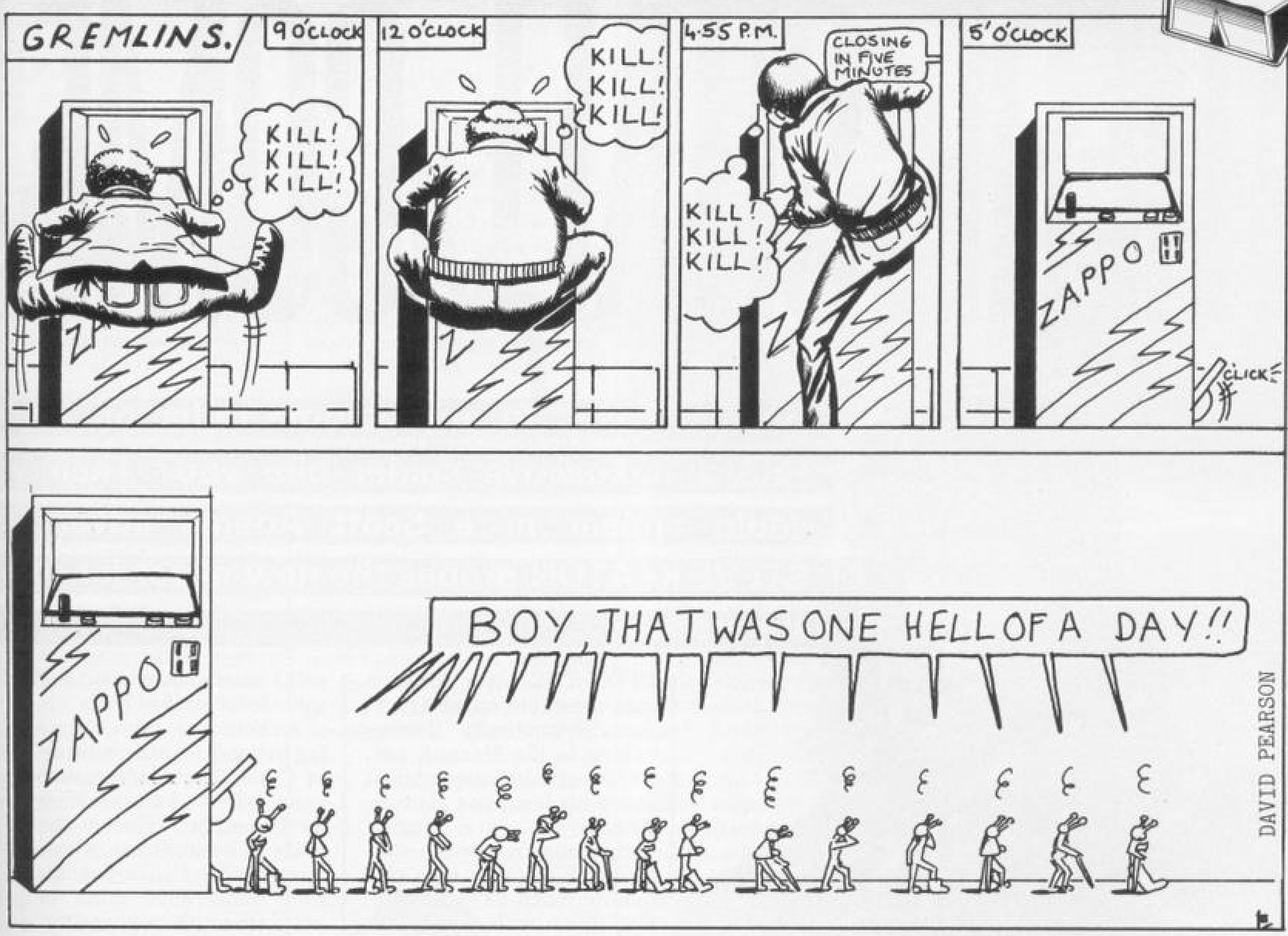
LISTING 2

```
   10REM".**********************
   20REM" *******  GP2  ********
   30REM" *** (C)  KIM ALDIS ***
   40REM" **********************
   50REM" ****** SAVE AS *******
   60REM" ******** GP2 *********
   70REM" **********************
   80ON ERROR RUN
   90PROCinit
  100REPEAT:PROCgraphics:UNTIL input%=81
 OR input%=113
  110END
  120REM"
  130DEFPROCgraphics
  140*FX229,1
  150PROCgetinput
  160IF fix%=1 PROCfix
  170IF NOT text% PROCdraw
  180IF input%=ASC"!" text%=NOT text%
  190IF input%=27:PROCdraw:PROCclear:END
PROC
  200IF input%=32 PROCdraw:CLS:ENDPROC
  210IF input%<127 OR input%>143 PROCdra
w:ENDPROC
  220PROCdraw:ON input%-126 GOSUB 250, 2
60,270,280,290,300,310,320,330,340,350,3
60,370,380,390,400,410
  230ENDPROC
  240REM"
  250PROCchardef:RETURN
  260PROCfill(x%,y%):RETURN
  270curs%=NOT curs%:RETURN
  280line%=NOT line%:RETURN
  290PROCerase:RETURN
  300PROCcol:RETURN
  310PROCcoords:RETURN
  320PROCredefine:RETURN
  330PROCtext:RETURN
  340PROCsquare:RETURN
  350PROCcircle:RETURN
  360RETURN
  370PROCload_save:RETURN
  380xs%=xs%-ix%:RETURN
  390xs%=xs%+ix%:RETURN
  400ys%=ys%-iy%:RETURN
  410ys%=ys%+iy%:RETURN
  420REM"
  430DEFPROCgetinput
  440x%=1280-(ADVAL(1) DIV 50):y%=ADVAL(
2) DIV 71
  450fix%=ADVAL(0) AND 3:input%=ASC(INKE
Y$(0))
  460ENDPROC
  470REM"
  480DEFPROCdraw
  490*FX19
  500IF line%MOVExs%,ys%:DRAWx%,y% ELSE
MOVEx%,y%
  510IF curs%PROCcurs
  520ENDPROC
  530REM"
  540DEFPROCfix
  550GCOL0,col%
  560IFline%MOVExs%,ys%:DRAWx%,y%
  570xs%=x%:ys%=y%:GCOL3,col%
  580ENDPROC
  590REM"
  600DEFPROCtext
  610CLS:PRINTTAB(0,0)"Enter text:-"
  620text$=""
  630VDU5:REPEAT
  640PROCgetinput:MOVEx%,y%:PRINTtext$+C
HR$253:*FX19
  650MOVEx%,y%:PRINTtext$+CHR$253:IF(inp
ut%<32 AND input%>11) OR input%<8 OR inp
ut%=127 THEN 670
  660text$=text$+CHR$(input%)
  670UNTIL fix%=1
  680GCOL0,col%:MOVEx%,y%:PRINTtext$:GCO
L3,col%:VDU4:xs%=x%:ys%=y%:CLS
  690PROCwait(1)
  700ENDPROC
  710REM"
  720DEFPROCcurs
  730GCOL3,3:MOVEx%-4*ix%,y%+4*iy%:VDU5,
253,4:MOVEx%,y%:GCOL3,col%
  740ENDPROC
  750REM"
  760DEFPROCcol
  770REPEAT
  780PROCgetinput
  790UNTIL input%>=128 AND input%<=131
  800col%=input%-128:GCOL3,col%
  810ENDPROC
  820REM"
  830DEFPROCerase
  840REPEAT:PROCgetinput:VDU5:MOVEx%,y%
  850VDU18,0,0,255:MOVEx%,y%:VDU18,3,3,2
55:MOVEx%,y%:VDU255
  860UNTILfix%=1:VDU4:xs%=x%:ys%=y%
  870PROCwait(1):GCOL3,col%
  880ENDPROC
  890REM"
  900DEFPROCload_save
 1100REM"
 1110DEFPROCcoords
 1120CLS
 1130len%=SQR((x%-xs%)^2+(y%-ys%)^2):ang
le%=DEG(ASN((y%-ys%)/len%))
 1140PRINTTAB(0,0);"X:- ";x%TAB(0,1)"Y:-
 ";y%TAB(10,0)"Lgth:- ";len%TAB(10,1)"An
gle ";angle%
 1150ENDPROC
 1160REM"
 1170DEFPROCsquare
 1180IF input%=224 PROCdraw:PROCvdudef:E
NDPROC
 1190xs%=x%:ys%=y%:rot%=FALSE
 1200REPEAT
 1210PROCgetinput
 1220PROCdrsq(x%,y%,xs%,y%,xs%,ys%,x%,ys
```


CONTINUED ON PAGE 76

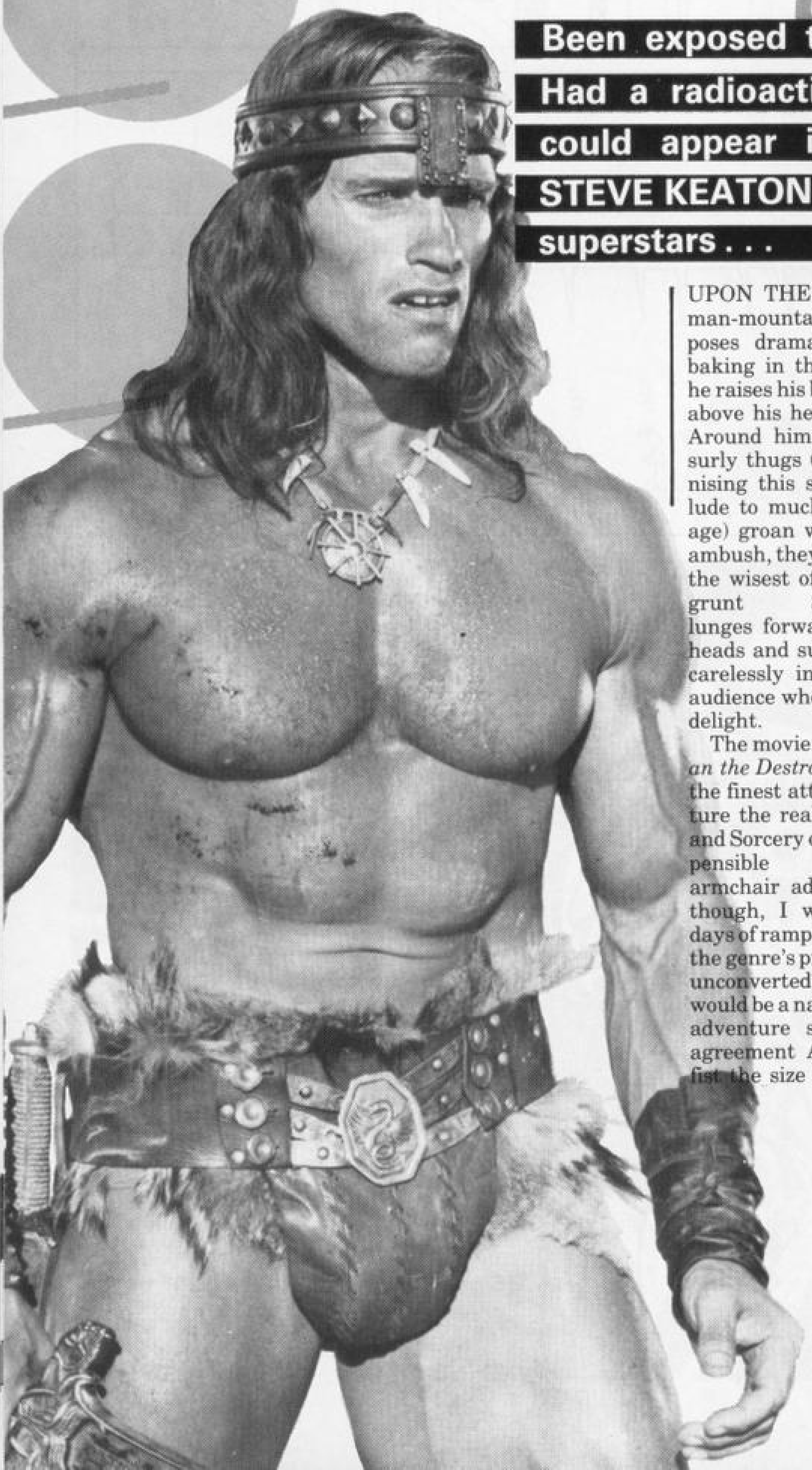
LISTING 2 contd.

```
%):PROCdrsq(x%,y%,xs%,y%,xs%,ys%,x%,ys%)
 1230IF input%=44 OR input%=46PROCrotate
 1240IFinput%=141xs%=xs%+ix% ELSEIF inpu
t%=142ys%=ys%-iy% ELSEIF input%=143ys%=y
s%+iy% ELSEIF input%=140xs%=xs%-ix%
 1250UNTIL fix%=1
 1260GCOL0,col%:IF NOT rot%PROCdrsq(x%,y
%,xs%,y%,xs%,ys%,x%,ys%)
 1270IF rot%PROCdrsq(xc%+r%*COS(th),yc%+
r%*SIN(th),xc%-r%*COS(al),yc%+r%*SIN(al)
,xc%-r%*COS(th),yc%-r%*SIN(th),xc%+r%*CO
S(al),yc%-r%*SIN(al))
 1280GCOL3,col%:PROCwait(1)
 1290rot%=FALSE
 1300ENDPROC
 1310REM"
          ----------
 1320DEFPROCdrsq(x1%,y1%,x2%,y2%,x3%,y3%
,x4%,y4%)
 1330MOVEx1%,y1%:DRAWx2%,y2%:DRAWx3%,y3%
:DRAWx4%,y4%:DRAWx1%,y1%
 1340ENDPROC
 1350REM"
          ----------
 1360DEFPROCrotate
 1370rot%=TRUE
 1380xc%=(x%+xs%)/2:yc%=(y%+ys%)/2
 1390de=0:r%=SQR((x%-xc%)^2+(y%-yc%)^2):
xr%=x%:yr%=y%
 1400REPEAT:th=ACS((xr%-xc%)/r%)+de:al=A
CS((xr%-xc%)/r%)-de:PROCgetinput
 1410PROCdrsq(xc%+r%*COS(th),yc%+r%*SIN(
th),xc%-r%*COS(al),yc%+r%*SIN(al),xc%-r%
*COS(th),yc%-r%*SIN(th),xc%+r%*COS(al),y
c%-r%*SIN(al))
 1420PROCdrsq(xc%+r%*COS(th),yc%+r%*SIN(
th),xc%-r%*COS(al),yc%+r%*SIN(al),xc%-r%
*COS(th),yc%-r%*SIN(th),xc%+r%*COS(al),y
c%-r%*SIN(al))
 1430IF input%=44 THEN de=de+PI/30ELSE I
F input%=46 THEN de=de-PI/30
 1440*FX21,0
 1450UNTIL fix%=1
 1460ENDPROC
 1470REM"
          ----------
 1480DEFPROCcircle
 1490rot%=FALSE
 1500xs%=x%:ys%=y%:rot%=FALSE:angle=0
 1510REPEAT:PROCgetinput
 1520PROCdrsq(x%,y%,2*xs%-x%,y%,2*xs%-x%
,2*ys%-y%,x%,2*ys%-y%):PROCdrsq(x%,y%,2*
xs%-x%,y%,2*xs%-x%,2*ys%-y%,x%,2*ys%-y%)
 1530IFinput%=141xs%=xs%+ix%ELSEIF input
%=142ys%=ys%-iy% ELSEIF input%=143ys%=ys
%+iy%ELSEIF input%=140xs%=xs%-ix%
 1540IF input%=44 OR input%=46xs%=2*xs%-
x%:ys%=2*ys%-y%:PROCrotate:REMxs%=(xs%+x
%)/2:ys%=(ys%+y%)/2
 1550UNTIL fix%=1
 1560IF NOT rot%GCOL0,col%:p=(y%-ys%)/(x
%-xs%):s%=x%-xs%:MOVExs%,ys%+p*s%:FORa=0
 TO 2*PI STEP PI/30:DRAWxs%+s%*SIN(a),ys%
+s%*p*COS(a):NEXT:GCOL3,col%
 1570IF rot%GCOL0,col%:PROCrotelipse:rot
%=FALSE:GCOL3,col%
 1580ENDPROC
 1590REM"
          ----------
 1600DEFPROCwait(T%)
 1610TIME=0:REPEAT UNTIL TIME>T%*100
 1620ENDPROC
 1630REM"
          ----------
 1640DEFPROCrotelipse
 1650len%=xr%-xc%:ang=PI/2-de:height%=yr
%-yc%:e=SIN(ang-PI/2):f=COS(ang-PI/2)
 1660MOVExc%+height%*e,yc%+height%*f
 1670FOR g=0 TO 2*PI STEP PI/30
 1680b=len%*COS(PI-ang-g):d=(len%-height
%)*COS(g):c=len%*SIN(PI-ang-g):h=d*e:j=d
*f
 1690DRAWxc%+b-h,yc%+c-j:NEXT:rot%=FALSE
 1700*FX21,0
 1710ENDPROC
 1720REM"
          ------------
 1730DEFPROCfill(x%,y%)
 1740LOCALlx%,rx%,nx%,bx%
 1750IF POINT(x%,y%)>0 THEN ENDPROC
 1760fi%=1:la%=0
 1770PROCscan(x%,y%):PROCpush(lx%,rx%,y%
)
 1780REPEAT:PROCpull:PROCchscan(y%+iy%):
PROCchscan(y%-iy%):UNTIL fi%=la%+1
 1790ENDPROC
 1800REM"
          ------------
 1810DEFPROCchscan(y%)
 1820LOCALnx%
 1830IF POINT(fx%,y%)=0 THEN nx%=fx% ELS
E PROCscanback(fx%,y%):nx%=bx%
 1840IF nx%>tox% THEN ENDPROC
 1850REPEAT:PROCscan(nx%,y%):PROCpush(lx
%,rx%,y%):PROCscanback(nx%,y%):nx%=bx%:U
NTIL nx%>tox%
 1860ENDPROC
 1870REM"
          ------------
 1880DEFPROCpush(fx%,tx%,y%)
 1890la%=(la%+1)MOD 100
 1900fxq%(la%)=fx%:txq%(la%)=tx%:yq%(la%
)=y%
 1910ENDPROC
 1920REM"
          ------------
 1930DEFPROCpull
 1940fx%=fxq%(fi%):tox%=txq%(fi%)
 1950y%=yq%(fi%):fi%=(fi%+1) MOD 100
 1960ENDPROC
 1970DEFPROCscan(x%,y%)
 1980PLOT77,x%,y%
 1990X%=stack%:Y%=stack% DIV 256
 2000A%=&0D:CALL&FFF1
 2010lx%=(!stack% AND &FFFF)
 2020rx%=(!(stack%+4) AND&FFFF)
 2030ENDPROC
 2040REM"
          ------------
 2050DEFPROCscanback(x%,y%)
 2060PLOT92,x%,y%:X%=stack%:Y%=stack% DI
V 256:A%=&0D:CALL&FFF1
 2070bx%=(!(stack%+4) AND &FFFF)+ix%
 2080ENDPROC
 2090REM"
          ------------
 2100DEFPROCinit
 2110text%=FALSE
 2120DIM stack% 8
 2130DIM fxq%(100),txq%(100),yq%(100),ve
r%(7),hor%(7)
 2140line%=TRUE:curs%=FALSE:col%=3:xs%=0
:ys%=0:vdu%=224:ix%=160/(?(&30A)+1):iy%=
4:GCOL3,col%:CLS
 2150ENDPROC
 2160REM"
          ------------
 2170DEFPROCchardef
 2180VDU24,1279-24*ix%;1;1279;97;:GCOL0,
128:GCOL3,1:CLG:xv%=1280-24*ix%:yv%=96:V
DU5
 2190REPEAT:PROCgetinput
 2200FOR J%=1 TO 2:MOVExv%,yv%:VDU254:NE
XT
 2210IF input%=140 xv%=xv%-3*ix%ELSEIF i
nput%=141 xv%=xv%+3*ix% ELSEIF input%=14
2 yv%=yv%-12 ELSE IF input%=143 yv%=yv%+
12
 2220IF input%=32 MOVExv%,yv%:VDU254
 2230IF xv%>(1280-3*ix%) xv%=1280-24*ix%
ELSEIF xv%<1280-24*ix%xv%=1280-3*ix% ELS
EIF yv%>96 yv%=12 ELSEIF yv%<12 yv%=96
 2240UNTIL input%=127
 2250PROCdefvdu
 2260VDU4,24,0;96;1279;1023;:CLS
 2270ENDPROC
 2280REM"
          ------------
 2290DEFPROCdefvdu
 2300countver%=0
 2310FOR ver%=92 TO 8STEP -12
 2320counthor%=0:mult%=128
 2330FOR hor%=1280-23*ix% TO 1280-ix% ST
EP 3*ix%
 2340hor%(counthor%)=POINT(hor%,ver%)*mu
lt%:counthor%=counthor%+1:mult%=mult%/2:
NEXT
 2350FOR I%=0 TO 7:ver%(countver%)=ver%(
countver%)+hor%(I%):NEXT
 2360FOR I%=0 TO 7:hor%(I%)=0:NEXT
 2370countver%=countver%+1
 2380NEXT
 2390VDU23,vdu%,ver%(0),ver%(1),ver%(2),
ver%(3),ver%(4),ver%(5),ver%(6),ver%(7)
 2400FOR I%=0 TO 7:ver%(I%)=0:hor%(I%)=0
:NEXT:vdu%=vdu%+1
 2410ENDPROC
 2420REM"
          ------------
 2430DEFPROCredefine
 2440CLS:PRINTTAB(0,0)"Colour to be chan
ged":col1%=GET:PRINTTAB(0,1)"Changed to
colour":col2%=GET
 2450lcol%=col1%-128:acol%=col2%-128:VDU
19,lcol%,acol%,0,0,0:CLS
 2460ENDPROC
```


GREMLINS.
9 O'CLOCK
KILL! KILL! KILL!
ZAPPO
12 O'CLOCK
KILL! KILL! KILL!
4.55 P.M.
CLOSING IN FIVE MINUTES
KILL! KILL! KILL!
5' O'CLOCK
ZAPPO
CLICK
BOY, THAT WAS ONE HELL OF A DAY!!
ZAPPO
DAVID PEARSON

THERE SHALL COME *Superheroes*

Been exposed to any gamma radiation lately? Had a radioactive spider bite you? Then you could appear in a Scott Adams adventure! STEVE KEATON probes the new quest for comic superstars . . .



UPON THE silver screen a man-mountain called Arnold poses dramatically. Triceps baking in the Mexican sun, he raises his broadsword high above his head and glowers. Around him, Sara Douglas' surly thugs (no doubt recognising this stance as a prelude to much physical damage) groan with dismay. An ambush, they realise, was not the wisest of moves. With a grunt Schwarzenegger lunges forward and severed heads and sundry organs fly carelessly into the air. The audience whoop in wide-eyed delight.

The movie of course is *Conan the Destroyer*, to my mind the finest attempt yet to capture the real glory of Sword and Sorcery on film and indispensible viewing for armchair adventurers. Why though, I wonder in these days of rampant licensing has the genre's premier hero gone unconverted? I mean, Conan would be a natural for his own adventure series! As if in agreement Arnold swings a fist the size of a small truck and a passing horse crumples into an undignified heap.

An hour or so later, following a climactic battle with one of Carlo Rambaldi's grosser special effects, I muse further on the subject. Surely the Marvel Comics Group, whose innumerable Conan publications have done much to popularise the character, could adapt him? Their recent coupling with Scott Adams' Adventure International company — for the *Questprobe* adventure game series — certainly gives them the machinery (the late Robert E. Howard's estate notwithstanding). I put this to Mike Woodruff, of Adventure International's UK appendage, Calistro.

"Conan?" he exclaimed, dashing my hopes with a brick, "I think that's unlikely. He's certainly not due to appear in any of the *Questprobe* games. We'll only be using characters from the standard Marvel Comics Universe, like *Spider-Man*, *The Hulk* and the *Fantastic Four*. It's a themed series and I mean, there's no way that Spider-Man is likely to meet Conan is there?" he chortles knowingly.

Of course that's highly possible in Marvel's many team-up titles but his point is clear. *Questprobe* is strictly for the superhero brigade. Closet Cimmerians like myself it seems have been left

tely?
you
ure!
mic

out in the cold. Some people clearly have no vision.

As this issue of BIG K shambles aimlessly on its way toward the printing press details are sparse on the new *Questprobe* game, *Spider-Man*. It's only a third complete. "All I can reveal," says Mike "is that the adventure co-stars Madame Web and the Sandman as well as some of the best graphics yet seen on a home micro. We've developed a special graphics routine for it which will enable us to make the most of available memory. As with *The Hulk* it'll be available for a host of machines. In addition to the Spectrum, CBM64, Atari (32K/48K disc), Apple (disc), Dragon 32, TRS80 and BBC we aim to produce a version for the Amstrad and possibly MSX. We've a team of two programmers and three artists working on the U.K. conversions." Mysterious Adventures' mainman, Brian Howarth who was originally mooted to convert the games left the project some time ago.

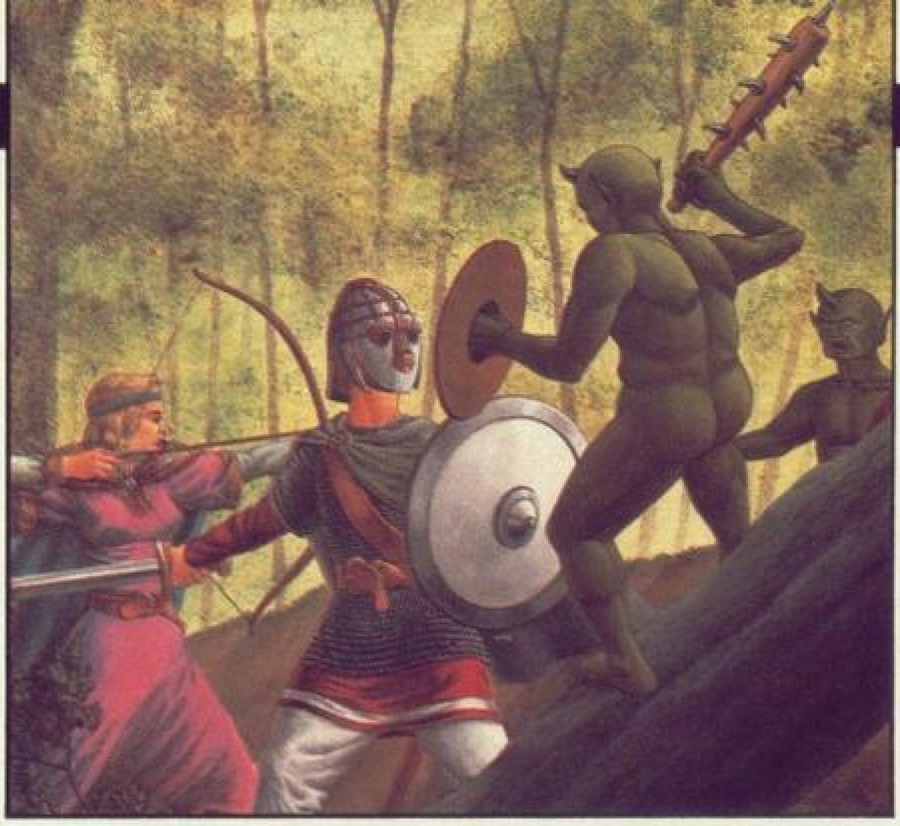
"Initially Scott Adams writes all his adventures in test-only form on his 48K Model 1 Tandy ," continues Mike. "Then he forwards them to Marvel for story approval and illustrations; a Marvel artist draws each scene in the game. The final coding is then done in Florida (Atari, Apple, CBM disc versions) and the U.K. Incidentally, Scott has actually redesigned the interpreter in his adventure-generator for *Spider-Man*, to allow for full sentence input. It's the first time he's offered more than the usual verb/noun format in one of his adventures!"

Adams is of course something of a coffee-table name amongst Dorkslayers. However his initial reluctance to cater for the U.K. market has left him less than well played. I suspect I'm not alone in claiming my introduction via *The Hulk*! It's a game that's been steadily driving me off my trolley since its release. Has anyone else had trouble with the ants or is it just me?

Spectrum, CBM64 and Apple/Atari owners will have enjoyed the best *Hulks* as these are the only versions to feature both text 'n' graphics. Regular readers will no doubt be amazed at this statement knowing of my well documented dislike for graphic adventures! But for once I actually believe that the art adds to the gameplay.

Thirty individual drawings are featured and these are augmented to great effect by a number of stylish overlays. A barren terrain f'rinstance is suddenly made to sprout anthills and then giant ants (curse 'em!) Such invention more than compensates for Scott's stilted, prehistoric prose style.

Initially bound to a chair in the guise of puny Bruce Banner you must bust loose and ransack the Chief Examiner's dodgy dimension for glowing gems (dunno why). The Chief Examiner by the way is the overseer of the entire *Questprobe* series. Having successfully trashed the chair you're well on your way to encountering former superhero colleagues *Doctor Strange* and Henry Pym a.k.a. the *Ant Man* (a role Pym actually gave up some time ago) as well as some grade A villains like *Ultron* and *Nightmare*. A *Questprobe* comic (which must be said is fairly dire) sets the scene for the game.



Much as I like *The Hulk* though, I don't really think it cuts much ice as a genuine Marvel Comics spin-off. Try and smash the place up in the grand green tradition and you're curtly told that 'the Hulk (tm) is no vandal'. Clearly an untruth! However Woodruff is adamant that the series is authentic! "We've a big comic collection in the office and our main artist, Teoman Irmak is what you might call a 'True Believer'. 'The Official Handbook of the Marvel Universe' is our bible. We use it as a reference source to avoid any embarrassing mistakes."

This might explain why the prog seems free of any exceptionally silly bugs. A shame as I've always regarded blunders as plus points. I can only advise frustrated (Spectrum) Hulkers not to beat the ENTER key (with their heads) too often as you'll find yourself locked into a 'I can't do that ... yet!' cycle. Even suicide brings no release. Keep banging away and the game NEWs itself. If anyone finds a more notable gaff let me know.



While unusual the Marvel/Adventure International collaboration is by no means unique. The precept was set some time ago in the States by Marvel's comic rivals, DC and Atari — then both owned by Warner Communications. The two shared a relationship that stretched back through a number of early releases for the elderly 2600 VCS. Titles such as *Berserk*, *Defender* and *Star Raiders* were all packaged with free half-size comic books. This crossover peaked with the release of the multi-cart graphic adventure *Swordquest*, a set of games not unlike the *Raiders* cart in style. The comics actually helped flesh-out the videogames, adding plot and motive to the four ROM episodes. They also contained clues, significant as Atari were offering an astonishing $150,000 worth of prizes to those that could solve the series. The challenge never made it across the pond.

Not to be outdone Marvel/Scott Adams are also offering a prize, although they're playing it cagey at the moment. No one knows what it is. With another three years of *Questprobe* still to run it had better be good! Shame about Conan though . . .

COMMODORE 64 • SPECTRUM • BBC • ORIC • DRAGON • TANDY

IF YOU THINK YOU'VE GOT THE BETTER OF YOUR COMPUTER, YOU'D BETTER THINK AGAIN....

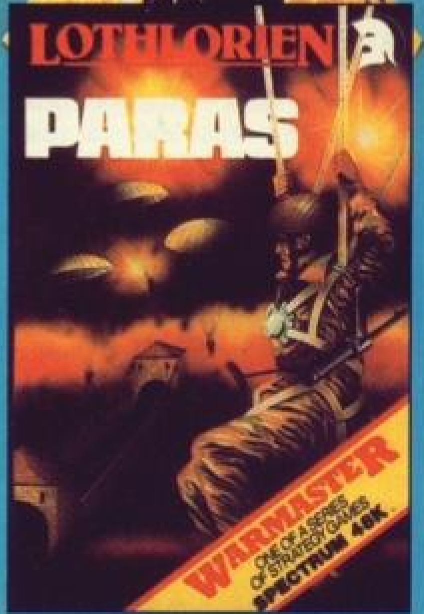
We all enjoy a good action game on our home computers, but after a while doesn't chasing the alien across a screen wear a little thin? That's the time to take on the superior challenge of a Warmaster strategy game — plenty of action, plenty to think about, and plenty of titles to suit every taste.

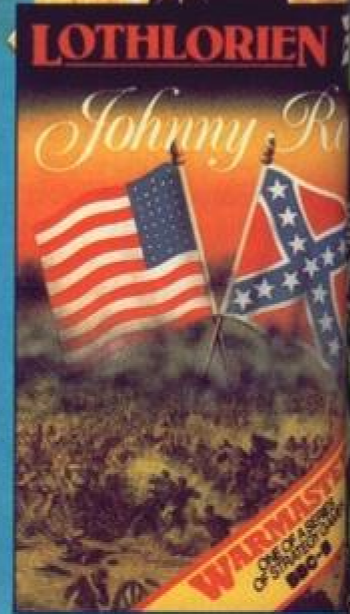
Take on Warmaster and really put your home computer through its paces.











CONFRONTATION
Build-on game that offers a basic format for any modern, non-nuclear conflict. Contains a modern European scenario with facility to create others of your choice using air and land forces.
Two-player game.
Spectrum 48K £7.95
BBC-B £7.95

RED BARON
Offers the excitement of arcade action but requires the tactical thought of war games. Pit your biplane against one or two of the Kaiser's aces in this aerial combat game.
Spectrum 48K £5.95

DREADNOUGHTS
Suspense-filled high seas drama as the pride of the German Grand Fleet is locked in battle with the Royal Navy.
Two-player game.
Spectrum 48K £5.95





BATTLEZONE 2000
Futuristic wargame. Your tanks, missile launchers, infantry etc. have to destroy an all powerful computer-controlled battle machine. Can you save Planet Earth?
BBC-B £6.95

PARAS
Dramatic all-graphics campaign. Your hand-picked force has dropped behind enemy lines to capture a strategic river crossing. Two versions of the game with ten levels of play.
BBC-B £6.95
Spectrum 48K £5.95
Oric 1 48K (coming soon) £6.95

JOHNNY REB
There's still plenty of fight left in the Confederate South as each side sel[ects] forces to manoeuvre on a full-graph[ics] battlefield. Play against the comput[er or] challenge a friend.
Spectrum 48K
Oric 1 48K
BBC-B
Dragon 32/Tandy Colour 32K
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SIMON SIMONS

```
   0>REM ***SIMON**By A.SHAW****
   1 PAPER 0: BORDER 1: BRIGHT 1
: FLASH 0: INVERSE 0: INK 7: OVE
R 0: CLS : FOR f=0 TO 21: PRINT
AT f,0; PAPER f/3;,,: NEXT f: PR
INT AT 10,9; FLASH 1; INK 2; PAP
ER 6;"          !": GO SUB 30
00
   2 LET no=0: POKE 23658,0: LET
 keys=0: REM
POKE 23658,0 sets the computer
to lower case letters        and
LET keys=0  switches of the key
system on the currah speech
   3 REM to make it easy for you
to type in the large letters I
have placed the appropriate
graphic keys in a REM statement
after that line.The computer
should be put into graphics mode
and then the keys should be
typed in.A "c" before a number
means CAPS SHIFT should be
pressed and "sp" means a space.
For the graphics for SIMON the
keys can be found at 2002-2008
   5 PAPER 0: BORDER 1: INK 7: C
LS
   6 GO SUB 9000
   7 GO SUB 7000
   8 IF no THEN GO TO 10
   9 GO SUB 6000
  10 LET P$="00000": LET a$="":
LET a=1
  11 CLS
  12 LET r$="LEVEL 1-9? ": FOR f
=20 TO 0 STEP -1: PRINT AT 10,f;
r$: BEEP .005,f: BEEP .005,20-f:
 NEXT f: LET s$="wot levul w(uh)
d y(ouu) l(ii)k": PAUSE 100: LET
 s$="won t(ouu) n(ii)n": REM
s$ is used in conjunction with
the currah speech unit and need
not be typed in if you don't
have one
  13 LET i$=INKEY$: IF i$<"1" OR
 i$>"9" THEN GO TO 13
  14 FOR f=1 TO LEN r$: PRINT AT
 10,0;r$(f TO ): BEEP .005,f: NE
XT f
  16 LET a=1/VAL i$: LET LEVEL=V
AL I$
  17 CLS
  18 PLOT 136,96: DRAW 0,-34: DR
AW -34,0: DRAW 0,34: DRAW 34,0
  20 LET go=1
  30 PRINT AT 10,13; INK 2;"  ";
 INK 6;"  ";AT 11,13; INK 2;"  "
; INK 6;"  ";AT 12,13; INK 7;"  "
; INK 4;"  ";AT 13,13; INK 7;"  "
; INK 4;"  "
  40 FOR f=104 TO 43 STEP -16: P
LOT 207,f: DRAW 41,0: DRAW 0,-9:
 DRAW -41,0: DRAW 0,9: NEXT f
  50 PRINT AT 9,19;"GO'S  :";AT 1
1,19;"TOTAL :";AT 13,19;"LEVEL :";
AT 15,13;"ILLEGAL KEY :";AT 9,26;
"00000";AT 11,26;"00000";AT 13,2
6;"00000";AT 15,26; PAPER 4;"
 "
  60 PRINT AT 2,4; INK 4; BRIGHT
 1;"                           "
  70 PRINT INK 5;""  © Anthony J
Shaw 27.04.84"
 100 LET r=INT (RND*4)+1
 105 PRINT AT 9,26;P$( TO 5-(LEN
 (STR$ (LEN A$))));LEN A$+1;AT 1
1,26;P$( TO 5-(LEN (STR$ GO)));G
O;AT 13,26;P$( TO 5-(LEN (STR$ L
EVEL)));LEVEL
 110 LET a$=a$+STR$ r
 120 GO SUB 1000
 130 LET go=go+1
 140 FOR f=1 TO LEN a$
 150 LET i$=INKEY$: IF i$<>"" TH
EN GO TO 150
 155 LET i$=INKEY$: IF i$="" THE
N GO TO 155
 157 IF i$<>"1" THEN IF i$<>"2"
THEN IF i$<>"3" THEN IF i$<>"4"
THEN IF i$<>"c" THEN PRINT AT 15
,26; PAPER 2; INK 6; FLASH 1;"
 ": BEEP .5,0: BEEP 1,-20: PRI
NT AT 15,26; PAPER 4;"      ": GO
 TO 150
 159 IF i$="c" THEN FOR g=1 TO L
EN a$: BEEP a,VAL a$(g): NEXT g:
 GO TO 150
 160 IF i$="1" THEN PRINT AT 10,
13; INK 0; OVER 1; PAPER 2; BRIG
HT 1;"  ";AT 11,13;"  ": BEEP a,
1: PRINT AT 10,13; PAPER 0; BRIG
HT 0; INK 2;"  ";AT 11,13;"  ":
IF a$(f)<>"1" THEN GO TO 500
 170 IF i$="2" THEN PRINT AT 10,
15; INK 0; PAPER 6; BRIGHT 1; OV
ER 1;"  ";AT 11,15;"  ": BEEP a,
2: PRINT AT 10,15; PAPER 0; BRIG
HT 0; INK 6;"  ";AT 11,15;"  ":
IF a$(f)<>"2" THEN GO TO 500
 180 IF i$="3" THEN PRINT AT 12,
13; PAPER 7; INK 0; BRIGHT 1; OV
ER 1;"  ";AT 13,13;"  ": BEEP a,
3: PRINT AT 12,13; PAPER 0; BRIG
HT 0;"  ";AT 13,13;"  ": IF a$(f
)<>"3" THEN GO TO 500
 190 IF i$="4" THEN PRINT AT 12,
15; INK 0; PAPER 4; BRIGHT 1; OV
ER 1;"  ";AT 13,15;"  ": BEEP a,
4: PRINT AT 12,15; PAPER 0; BRIG
HT 0; INK 4;"  ";AT 13,15;"  ":
IF a$(f)<>"4" THEN GO TO 500
 200 NEXT f: FOR f=60 TO -60 STE
P -2: BEEP .003,f: NEXT f: IF go
/11=INT (go/10) THEN LET a$="":
LET a=a-.1: LET LEVEL=LEVEL+1: I
F LEVEL=11 THEN GO TO 2000
 210 GO TO 100
 500 PRINT AT 10,0; OVER 1; INK
3; BRIGHT 1;"          ";AT 11
,0;"          ": BEEP 1,-30: B
EEP 2,-50: LET s$="ron(gg) it (
sh)(uh)d hav b(ee)n": PAUSE 150:
 PRINT AT 13,0; INK 6;" It shou
ld";AT 14,0; INK 6;" have been:
": LET z=10-LEN a$: LET z=z/2: P
RINT AT 15,z+2;: FOR f=1 TO LEN
a$: PRINT INK 0+2*(a$(f)="1")+6*
(a$(f)="2")+7*(a$(f)="3")+4*(a$(
f)="4");a$(f);: NEXT f: PAUSE 30
: LET a=1: GO SUB 1000
 505 REM c5 c5 c5 c4 c5 c4 c5 c1
 5 5 3 5 : c1 c1 c5 c4 c7 c1 c5
c5 7 5 c2 4
 510 LET Z$="-=PRESS ANY KEY TO
START E-END=-"
 515 LET s$="pres en(ee) k(ee) t
(ouu) st(ar)t  (or) (ee) t(ouu)
end"
 520 PRINT #0;AT 0,0; INK 2; PAP
ER 6; BRIGHT 1;Z$: LET Z$=Z$(2 T
O )+Z$(1)
 530 FOR F=1 TO 5: IF INKEY$<>""
 AND INKEY$<>"e" THEN GO TO 2
 532 IF INKEY$="e" THEN GO TO 40
00
 535 PRINT AT 2,4; PAPER 0; OVER
 1; INK RND*4+4;"

"
 540 NEXT F: GO TO 520
1000 FOR f=1 TO LEN a$
1010 IF a$(f)="1" THEN PRINT AT
10,13; INK 0; PAPER 2; BRIGHT 1;
 OVER 1;"  ";AT 11,13;"  ": BEEP
 a,1: PRINT AT 10,13; INK 2; PAP
ER 0; BRIGHT 0;"  ";AT 11,13;"  
"
1020 IF a$(f)="2" THEN PRINT AT
10,15; INK 0; PAPER 6; BRIGHT 1;
 OVER 1;"  ";AT 11,15;"  ": BEEP
 a,2: PRINT AT 10,15; PAPER 0; B
RIGHT 0; INK 6;"  ";AT 11,15;"  
"
1030 IF a$(f)="3" THEN PRINT AT
12,13; INK 0; PAPER 7; BRIGHT 1;
 OVER 1;"  ";AT 13,13;"  ": BEEP
 a,3: PRINT AT 12,13; PAPER 0; B
RIGHT 0; INK 7;"  ";AT 13,13;"  
"
1040 IF a$(f)="4" THEN PRINT AT
12,15; INK 0; PAPER 4; BRIGHT 1;
 OVER 1;"  ";AT 13,15;"  ": BEEP
 a,4: PRINT AT 12,15; PAPER 0; B
RIGHT 0; INK 4;"  ";AT 13,15;"  
"
1050 NEXT f: RETURN
2000 BRIGHT 1: DIM k$(5,50): LET
 k$(1)="                     ":
 LET k$(2)="                 
 ": LET k$(3)="              
   ": LET k$(4)="            
 "
2002 REM k$(1)=c3 c3 c3 c7 c3 c3
 c3 c7 c3 c7 sp4 c3 4 c3 c3 c3 4
 sp sp sp c7
2004 REM k$(2)=c8 sp sp sp sp 5
c5 sp c8 1 c3 2 5 5 sp sp 5 5 c4
 c7 sp c5
2006 REM k$(3)=3 3 3 c5 sp 5 sp
sp c5 sp 3 sp 5 5 sp sp 5 5 sp 1
 c7 c5
2008 REM k$(4)=c3 c3 c3 c5 c3 c2
 c3 c7 c5 sp sp sp 5 5 c3 c3 c2
5 sp sp 1 c5
2010 PRINT AT 2,0;: FOR f=1 TO 5
: PRINT TAB 4; INK 4;k$(f, TO 27
): NEXT f
2020 FOR g=1 TO 28: FOR f=1 TO 5
: PRINT AT f+1,4; INK 4;k$(f, TO
 27): NEXT f: FOR f=1 TO 5: LET
k$(f)=k$(f,50)+k$(f, TO 49): NEX
T f: BEEP .005,f+g: NEXT g
2030 FOR f=1 TO 17: LET l=USR 32
80: BEEP .005,f: BEEP .005,f+1:
BEEP .005,f: NEXT f
2040 FOR g=1 TO 28 STEP 1: FOR f
=1 TO 5: PRINT AT f+1,4; INK 4;k
$(f, TO 27): NEXT f: FOR f=1 TO
5: LET k$(f)=k$(f,2 TO )+k$(f,1)
: NEXT f: BEEP .005,f+g: NEXT g
2050 PRINT AT 8,8; INK 3;"BOWS D
OWN TO YOU";AT 10,8; INK 5;"BECA
USE YOU HAVE";AT 12,11; INK 6;"B
EATEN HIM"
2999 STOP
3000 LET count=0
3005 LET s$="stop (dth)u t(ay)p"
3010 OUT 254,0: OUT 254,0: OUT 2
54,1: OUT 254,2: OUT 254,3: OUT
254,4: OUT 254,5: OUT 254,6: OUT
 254,7: OUT 254,1: OUT 254,1: OU
T 254,1
3020 LET count=count+1: IF IN 65
330=255 THEN LET count=0
3025 IF count=100 THEN RETURN
3030 GO TO 3010
4000 FOR F=0 TO 24: PRINT #0;AT
1,0; PAPER 1,,: LET L=USR 3582:
BEEP .005,F: BEEP .005,F+1: BEEP
 .005,F: NEXT F
4010 FOR F=0 TO 24: PRINT #0;AT
1,0; PAPER 0;,,: LET L=USR 3582:
 BEEP .005,24-F: BEEP .005,25-F:
 BEEP .005,24-F: NEXT F
4020 INK 3
4025 BORDER 1: PAPER 0: CLS
4030 LET a$="                    
                                 
                         "
4040 PRINT AT 7,0;a$
4100 FOR f=60 TO -60 STEP -4: BE
EP .005,f: BEEP .005,f+1: BEEP .
005,-f: BEEP .005,f: NEXT f
4110 DIM d$(192): FOR f=1 TO 10:
 FOR g=1 TO 7: PRINT AT 7,0; PAP
ER 0; OVER 1; INK g;d$: BEEP .00
5,g: BEEP .005,f+g: BEEP .005,f+
```



SIMON SIMON

SIMON is a well-known smart-asteroid who socks posers at you — and do you ever feel a nerd when you can't do what Simon Says! Overall, an interesting problem in human psychology . . . but in the meantime here's a scroting li'l listing for you Specced-up punters out there to type in. Info in the prog, chums.

by A. SHAW

runs on Sinclair Spectrum

```
9+1: BEEP .005,g: NEXT g: NEXT f
4120 FOR f=60 TO -60 STEP -8: BE
EP .005,f: BEEP .005,-f: NEXT f
4130 FOR f=1 TO 100: PRINT AT IN
T (RND*4)+7,INT (RND*31);" ": BE
EP .005,f-45: NEXT f
4140 FOR f=0 TO 22: LET l=USR 32
80: BEEP .05,f: NEXT f
4150 FOR f=1 TO 200: PLOT INK RN
D*4+4,INT (RND*255),INT (RND*175
): OUT 254,INT (RND*255): NEXT f
4160 INK 0
4170 INK 5: PLOT 110,70: DRAW 0,
20: DRAW 10,0: DRAW 0,-5: DRAW 5
,5: DRAW 10,0: DRAW -10,-10: DRA
W 10,-10: DRAW -10,0: DRAW -5,5:
 DRAW 0,-5: DRAW -10,0
4180 PLOT 112,72: DRAW 0,16: DRA
W 6,0: DRAW 0,-7: DRAW 7,7: DRAW
 6,0: DRAW -8,-8: DRAW 8,-8: DRA
W -6,0: DRAW -7,7: DRAW 0,-7: DR
AW -6,0
4190 PLOT 103,62: DRAW 39,0: DRA
W 0,36: DRAW -39,0: DRAW 0,-36
4200 DRAW 0,36: DRAW 9.5,15: DRA
W 20,0: DRAW 9,-15
4210 PRINT AT 8,14; OVER 1;"BIG"
4220 FOR f=80 TO 75 STEP -1: PLO
T 110,f: FOR g=1 TO 4: DRAW 2,2:
 DRAW 2,-2: NEXT g: NEXT f
4300 BORDER 0: PRINT AT 2,11; IN
K 3;"S I M O N "
4310 PRINT AT 4,2; INK 5;"Writte
n by Anthony James Shaw      "
4320 PRINT AT 6,14; INK 6;"for"
4322 INPUT "": LET s$="s(ii)m(uh
)n   riten b(ii) antun(ee) j(ay)
mz (sh)(or)   f(or)     bi(gg) k
(ay)": PAUSE 320
4324 LET s$="(th)anky(ouu) f(or)
 pl(ay)i(ng)    (ii) h(oo)pd y(ou
u) en)(oy)d it"
4326 PAUSE 200: LET s$="(gg)(uh)
(dd) b(ii)"
4330 DIM d$(7): FOR f=1 TO 7: BR
IGHT 1: FOR g=7 TO 14: PRINT AT
g,12; INK f; OVER 1;d$: NEXT g:
NEXT f: GO TO 4330
4999 STOP
5000 REM auto save routine
5010 CLEAR : SAVE "SIMON SAYS" L
INE 0: VERIFY "SIMON SAYS": RUN
6000 LET Z=8: CLS : PRINT AT 2,4
; INK 4; BRIGHT 1;"        SIM
ON"
6010 PRINT INK 5;'"  © Anthony J
 Shaw 27.04.84"
6020 PRINT INK 6;'" Welcome to "
; INK 2;"S"; INK 4;"I"; INK 7;"M
"; INK 6;"O"; INK 2;"N"
6030 PRINT INK 6;"  This game is
 based on the      electronic gam
e called SIMON.    The idea of S
IMON is to repeat a sequence of
sounds and colourswhich SIMON ha
s produced.When    you get it rig
ht another sound  and colour is
added to the      sequence.This
goes on until     there are ten
in the sequence,a new sequence w-
ill then be       generated but
will be shown     slightly faste
r."
6040 GO SUB 6500
6050 LET Z=17: PRINT AT 9,0; INK
 6;" The screen"'"looks like"'"t
his:-"
6051 PLOT 136,96: DRAW 0,-34: DR
AW -34,0: DRAW 0,34: DRAW 34,0
6052 PRINT AT 10,13; INK 2;"4";
 INK 6;"ɔ";AT 11,13; INK 2;"⊥"
; INK 6;"∠";AT 12,13; INK 7;"ɔ
"; INK 4;"(";AT 13,13; INK 7;"\
)"; INK 4;"4"
6053 FOR f=104 TO 43 STEP -16: P
LOT 207,f: DRAW 41,0: DRAW 0,-9:
 DRAW -41,0: DRAW 0,9: NEXT f
6054 PRINT AT 9,19;"GO'S :";AT 1
1,19;"TOTAL:";AT 13,19;"LEVEL:";
AT 15,13;"ILLEGAL KEY:";AT 9,26;
"00000";AT 11,26;"00000";AT 13,2
6;"00000";AT 15,26; PAPER 4;"
 "
6060 PRINT AT 17,0; INK 6;" Ther
e are four colours and foursound
s.These relate to the keys as sh
own"
6065 PAUSE 5: PRINT AT 20,10;"1
2 3 4": PLOT 79,17: DRAW 58,0: D
RAW 0,-10: DRAW -58,0: DRAW 0,10
6070 PAUSE 500: FOR N=1 TO 4: LE
T A$=STR$ N: LET A=1.5: PRINT AT
 20,8+N*2: OVER 1; PAPER 1; INK
7; BRIGHT 1; FLASH 1;" ": GO SUB
 1000: PAUSE 30: PRINT AT 20,8+N
*2; OVER 1; PAPER 0; INK 7;" ":
NEXT N
6075 GO SUB 6500
6080 PRINT AT 9,19; PAPER 1; INK
 7; BRIGHT 1; FLASH 1; OVER 1;"
     ": PRINT AT 17,0; INK 6;" A
 counter records how far into th
e sequence you are and is     re
set when the sequence is reset"
6090 PAUSE 500: FOR f=1 TO 9: PR
INT AT 9,30;f: BEEP .5,f: NEXT f
: PRINT AT 9,30;"0": PRINT AT 9,
19; INK 7;"GO'S :"
6095 GO SUB 6500
6100 PRINT AT 11,19; FLASH 1; IN
K 1; PAPER 7; OVER 1; BRIGHT 1;"
      "
6105 PRINT AT 17,0; INK 6;" The
second counter "TOTAL"      is th
e same as "GO'S" except     that
it is not reset when the    seque
nce is generated"
6106 PAUSE 500: PRINT AT 11,19;
OVER 1;"      "
6107 GO SUB 6500
6110 PRINT AT 13,19; BRIGHT 1; I
NK 1; PAPER 7; FLASH 1; OVER 1;"
      ": PRINT AT 17,0; INK 6;"
The last counter is the skill  l
evel.This ranges from 1 {easy} t
o 9 {hard}.This is incremented e
very time a new sequence is    g
enerated"
6115 PAUSE 500: PRINT AT 13,19;
INK 7; PAPER 0; OVER 1;"
"
6116 GO SUB 6500
6120 PRINT AT 15,13; INK 7; PAPE
R 1; BRIGHT 1; OVER 1; FLASH 1;"
            ": PRINT AT 17,0; IN
K 6;""ILLEGAL KEY" flashes if a
key  which is not between 1 & 4
is   pressed.E.G. press some key
s andsee what happens.{X-exit}"
6130 LET i$=INKEY$: IF i$<>"" TH
EN GO TO 6130
6131 LET i$=INKEY$: IF i$="" THE
N GO TO 6131
6132 IF (i$<"1" OR i$>"4") AND i
$<>"x" THEN PRINT AT 15,26; PAPE
R 2; INK 6; FLASH 1;"     ": BEE
P .5,0: BEEP 1,-20: PRINT AT 15,
26; PAPER 4;"     ": GO TO 6130
6133 IF i$="x" THEN GO TO 6140
6134 IF i$="1" THEN PRINT AT 10,
13; INK 0; OVER 1; PAPER 2; BRIG
HT 1;"  ";AT 11,13;"  ": BEEP a,
1: PRINT AT 10,13; PAPER 0; BRIG
HT 0; INK 2;"4 ";AT 11,13;"⊥"
6135 IF i$="2" THEN PRINT AT 10,
15; INK 0; PAPER 6; BRIGHT 1; OV
ER 1;"  ";AT 11,15;"  ": BEEP a,
2: PRINT AT 10,15; PAPER 0; BRIG
HT 0; INK 6;"ɔ ";AT 11,15;"∠"
6136 IF i$="3" THEN PRINT AT 12,
13; PAPER 7; INK 0; BRIGHT 1; OV
```





TURN TO PAGE 116

SIMON FOR SPECTRUM 48K

HERE COME THE

And foremost in their ranks is one DAVID MACHEN. To say that databases and baud rates send him into ecstasy would be understating it. Elec-

SO YOU have saved up your pennies, and you have finally decided that you are going to splash out and get yourself a nice, new modem. The idea of making midnight phone calls to a Swiss bank's central computer, and transferring all the money into your account appeals to you, doesn't it? Well, before you part with your hard-earned green-backs, you must decide what sort of modem you require. And also what factor you can afford your phone bill to multiply by.

ACOUSTIC: NEEDS QUIET

Firstly, you must decide whether you want an "acoustic coupler", or a "hardwired" modem. The former is the simpler of the two, and it consists of two rubber grips, into which you hammer your telephone handset. Inside the grips are a microphone, and a speaker, which correspond to the phone's earpiece and mouthpiece respectively. The idea is that the bleeps and whistles which are sent over the phone to represent the data are physically generated, and transmitted in much the same way as speech. This is fine, unless you have a non-standard phone (Trimphone, Snoopy, etc.), which refuses to fit properly into the rubber grips, or if you live next door to a Wimpey construction site. You see, any background noise is picked up, and if it is loud enough, it will decimate your screen display, throwing garbage all over the place. You try using an acoustic coupler to print out a Micronet frame with a nearby dot matrix printer. Forget it! However, on the plus side is portability, and the fact that you can use it on a telephone that is not yet equipped with Uncle Buzby's new socket. If you intend to use your modem in a phone box, for example, you would need an acoustic coupler. Alternatively, for those without phone boxes. . . .

HARDWIRE: COSTS MORE

The hardwired modem is a much more discreet affair. They come in all shapes and sizes, and they are generally just boxes, with the odd switch or LED on the front. The connections with a hardwired modem are much more reliable. You plug the modem into your computer, and also into your phone socket (if you haven't got one of these, your friendly local British Telecom office will fit you one for around £15). You then plug your phone into the modem. When you want to use your phone for normal purposes, you do so as you would without the modem attached. However, when you want to use the computer with your phone, you switch the link to the telephone out of the circuit, so that you have got a direct link, via a wire, from the computer to the phone jack. Say goodbye to background noise. However, as you might expect, a hardwired modem will cost you considerably more than an acoustic coupler, although the prices are falling now, as micro communication becomes more popular, and the competition heats up.

SPEED OF USE

The second thing you must decide on is what you want to use your modem for, as different services use different speeds of data transfer. For most modem users, the most frequently accessed database is Micronet 800. This is a sub-database on Prestel, British Telecom's viewdata service, and is operated rather like an electronic computer magazine. In fact, Micronet is run by East Midlands Allied Press (EMAP) who also publish a couple of "low-technology" paper computer magazines. However, it goes a bit





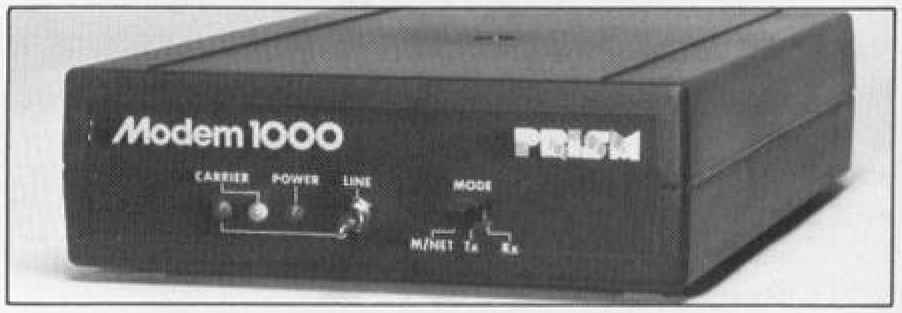
further than that. Imagine a magazine consisting of around 40,000 pages, which are being updated *fairly* frequently (are you listening, letters editor?), with daily news updates, electronic mail facilities so that you can send messages to other users, games, prize competitions you can enter there and then using the two-way facilities of your modem, and FREE software, that you can download from the database.

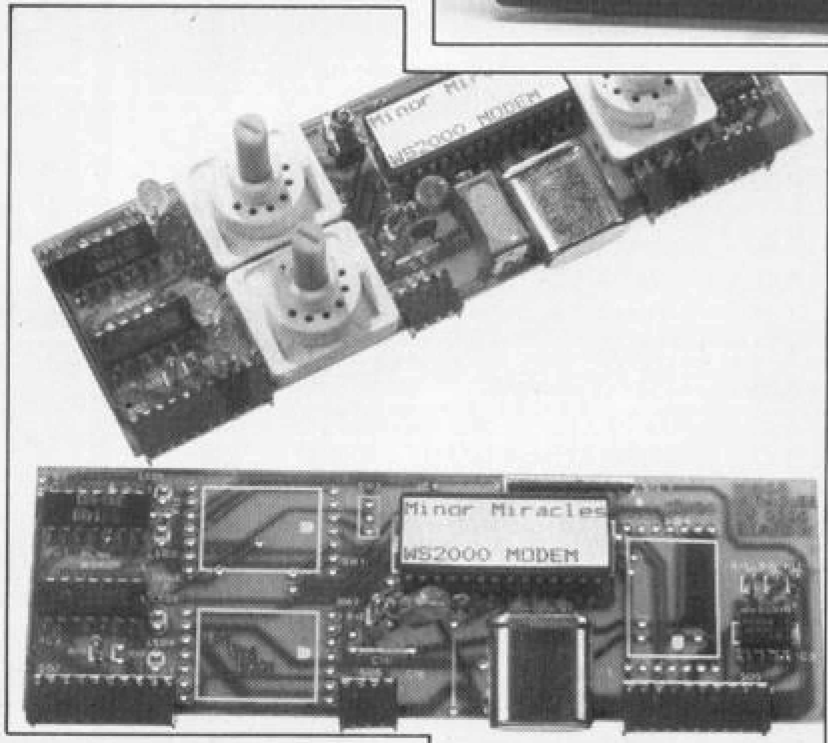
Micronet 800 uses what is known as the viewdata standard 1200 baud/75 baud speed. That is to say you can receive around 120 characters a second, and send about 5. Okay for receiving Prestel pages,

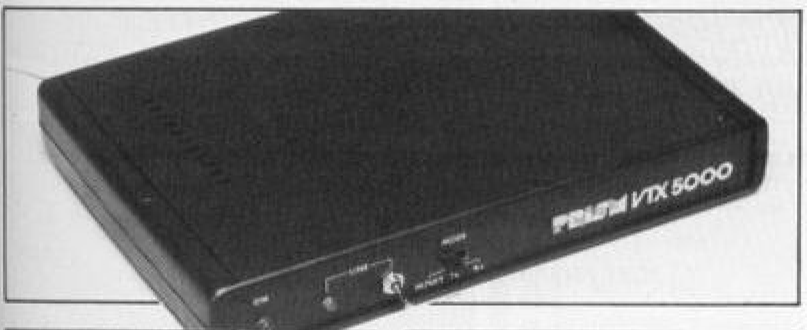
HACKERS!

tronic mail and down-line loading turn him on, too. See how it all grabs you, and try . . .
LIVING IN THE MODEM WORLD!

but a bit slow to say the least if you are trying to send a lot of information. For that reason, the other common speed is 300/300 baud, or the CCITT V.21 standard. This is used on computer "bulletin boards" which are rather like versions of Prestel in miniature, and are run by home enthusiasts using micros much the same as yours. However, each board has a different style, almost a character of its own, which it usually takes from its compiler, known as the "sysop" (systems operator). These dedicated computer enthusiasts not only compile the system, but have often built the hardware and written the software themselves. They must also have modems with what is known as an "auto-answer" capability, so that they do not have to answer the phone at one in the morning when some insomniac hacker wants a butcher's at their board. There is now a system available from the Notting Dale Information Technology Centre (which was, you may remember, featured on BBC TV's "Micro-Live") which is designed to help those with less experience (or less time) to start their own bulletin-type system. It is called CommunITel, and it consists of a DACOM auto-answer, auto-dial modem, which will operate at 1200/75, 75/1200 and 300/300 baud, plus the software to drive a bulletin board. The price? Around £300. Contact the Notting Dale ITec at 189 Freston Road, London W10 for more details.







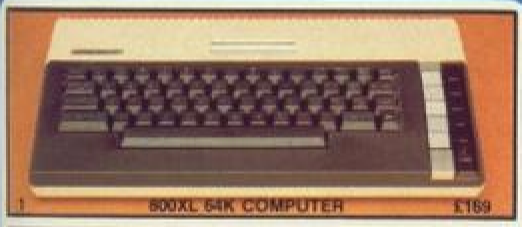
LEGAL QUESTION

One of the more subtle problems of buying a modem is the question of "is it legal to use once I've got it home?" Unless the modem that you buy has a "BT Approved" sticker on it you are breaking the law by using it on a British Telecom phone system, and could have your phone cut off.

Once you have your modem, you will also need some software to make it work. This again depends on what type of communication you want to use your micro for, and very often nowadays, you can pick up a complete package which includes the modem and software. Software can range from the simplest of dumb terminals, to the not-so-dumb systems capable of downloading telesoftware, and preparing message frames off-line. Some of the software is a bit pricey compared to games, but you get what you pay for. As always, shopping around can be very profitable.

WHAT'S THE DAMAGE?

Finally, we come to the inevitable question. How much is it all going to cost? Well, I'm afraid that it doesn't come cheap. A modem can cost you upwards of around £50. Then you have to pay your subscription for both Prestel and Micronet. You can just pay for Prestel, but then you won't be able to access the Micronet pages, as they are in a Closed User Group. Prestel costs £5 a quarter, and Micronet £8 a quarter. That works out to around £1 a week: not bad if you consider the price of your daily newspaper. Then there are access charges. If you use the system in "office hours" (between 8am and 6pm Monday-Friday, or between 8am and 1pm on Saturday) then it will cost you 5p per minute. However, there is no charge outside these hours. You should contact Micronet 800 on 01-278 3143 for subscription details. And, last but by no means least, are your phone charges. This, of course depends on how much you use your modem. You can normally access Prestel on a local phone call. But let me leave you with a true horror story of a gentleman who accessed a Stateside database, in the Olympic City of Los Angeles. He didn't *quite* put the phone down properly . . . and went on holiday for the weekend. When he returned, he found his phone bill to be £3K. . . .

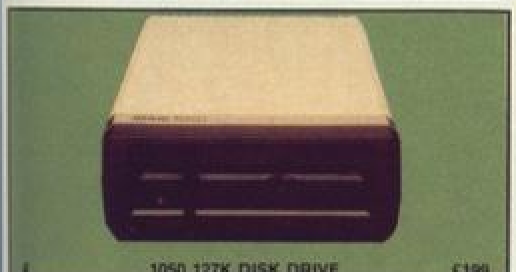

1 800XL 64K COMPUTER £169



2 800 48K COMPUTER £69



3 1010 PROGRAM RECORDER £34


4 1050 127K DISK DRIVE £199

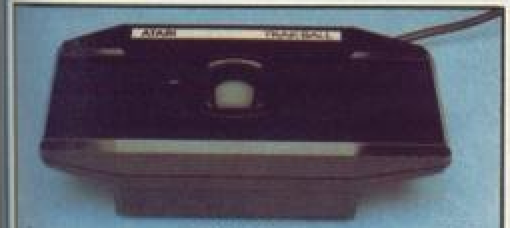

5 1020 4 COLOUR PRINTER £99



6 LETTER QUALITY PRINTER £249



7 TOUCH TABLET PEN - CART £49



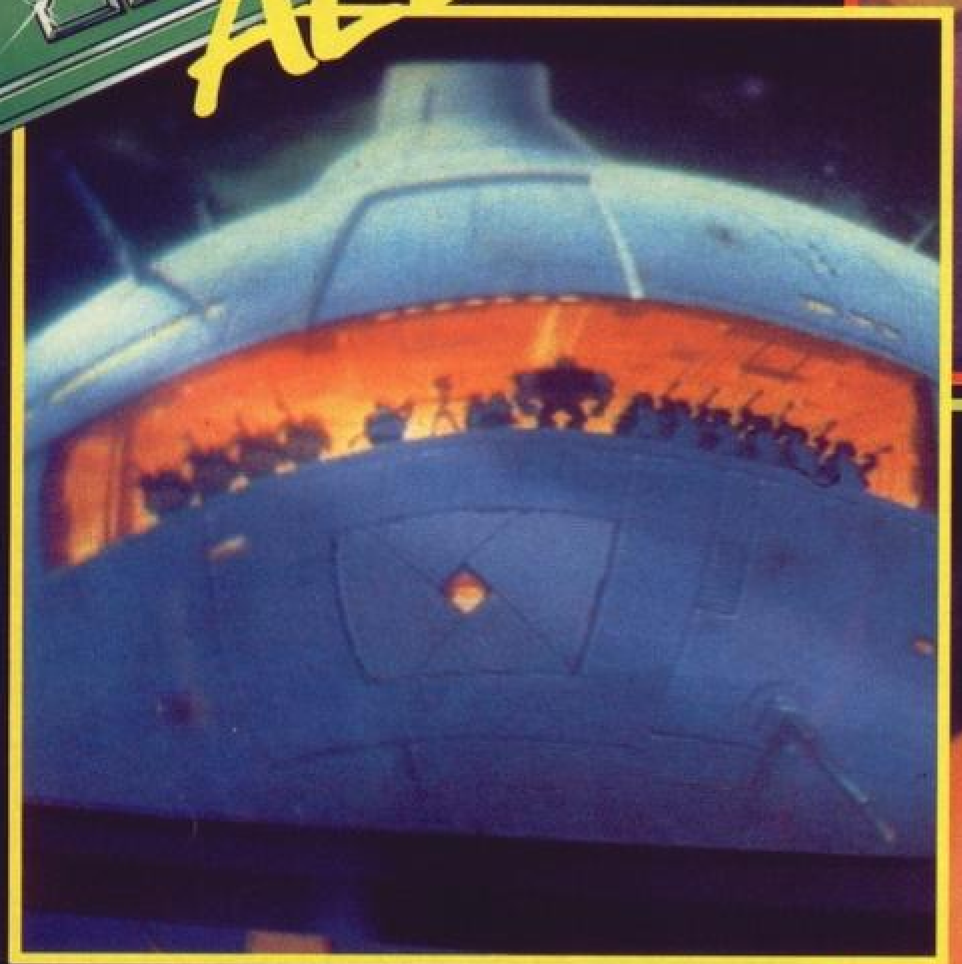
8 TRAK BALL £19.95


9 SUPER CONTROLLER £14.95

ARCADE ALLEY

BIG K



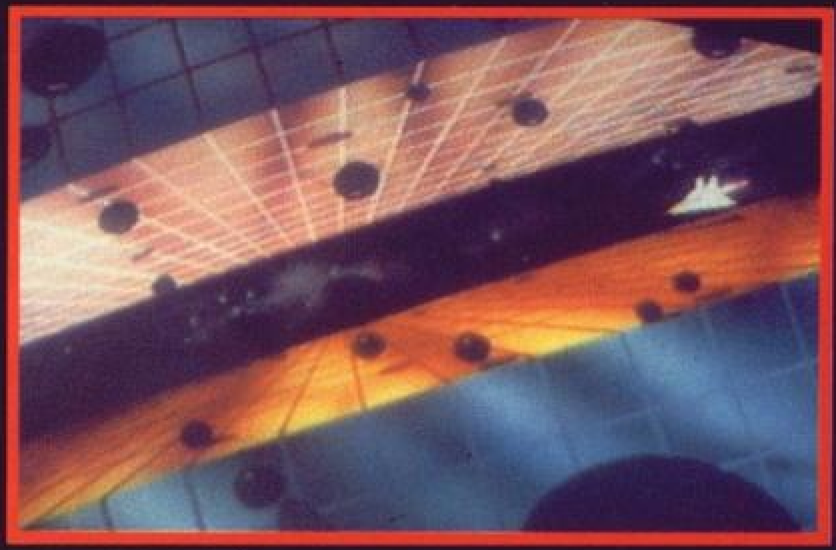




DEX'S STARLIGHT RUNNER

It's tough being a laser-based Intergalactic Hero; even tougher when your immediate ancestor was Dork the Daring of Dragon's Lair fame. GIOVANNI DADOMO shells out the shekels for a bout of Space Ace role playing.









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ace

FROM THOSE wonderful people who gave us the superb animation game *Dragon's Lair* comes *Space Ace*, a second adventure in the same medium but this time, as the name suggests, with an intergalactic theme. The action's instant: no sooner do you drop your loot in the slot than the slight, fair-haired hero loses his bounteously curved female companion. Worse still, he has no time to mourn her kidnapping because the asteroid on which he's perched is immediately blasted to bits by an immense villain with blue skin and an Oriental top-knot, whose gross guffaws and belly to match give him a distinct resemblance to Popeye's old punchin' pal, Bluto.

In the initial stages of the game one's shown the location of a "safe" spot by a blinking blue light effect. Activate the joystick in the appropriate direction and young Dexter (for such is our hero's name) obediently leaps behind a conveniently placed boulder — just in time to avoid a deadly ray-gun blast. Or not, as in the case of this novice, who took three attempts before even this first minor obstacle was conquered. From there on in the perils come thick and fast. A leap lands Dex on a handy hillock which is promptly atomised by a trio of hovering saucers. Skip left if you can and you'll maybe reach the safety of a spaceship, Dex! But leave this a second too late and you're caught in the deadly grip of a giant Meccano-type monstrosity that gleefully hurls you into a bottomless pit.

On top of that, there's a vast, weird, 'Alien'-type spacecraft to be negotiated, with peril piling on peril as Dexter tries to track down his missing miss before she's done away with. In the meantime, of course, attempting to keep his own goose uncooked as he faces: a wild ride on a series of geometric surfboards that break up under his very feet, a whole catalogue of monsters — reindeer-horned wolfy things, giant, multi-coloured carnivores, a pack of werecats — and sundry confrontations with the aforementioned blue meanie.

At one point he saves his girl only to see her suddenly transformed into a sickly blue alter ego of himself — intent on murderous mayhem — what else? Another rivetting sequence occurs when the ship's suddenly flooded and he almost gets eaten by a giant fish. He avoids that only to find himself the intended dish of the day for an even bigger finned fiend (cue 'Jaws' music, of course).

Just in case you get bored there are sporadic appearances of the word 'ENERGIZE' on the screen. Press the matching word-button and meek, weedy Dexter is suddenly transformed into a muscle-on-muscle Arnold Schwarzenegger type. When this happens you might *think* you're laughing (I did) but the big pectorals etc. are useless when not allied to a continued agility at the controls. Forget that and you'll just end up a Big Thingy's dinner.

Fast, furious, funny, tremendously varied, this is quite simply one of the most amusing arcade games to have come along since its 'DL' sibling. If you're a sucker for animation anyway (and this is miles better than your feeble 'He-Man' type cut-out) then look no further. Pricey, but well worth it. *Mucho* thrill-power, to borrow a fine, familiar phrase. Go to it!

BIG K charts

key

SP = Spectrum, AC = Acorn, 64 = Commodore 64, V20 = Vic 20, 81 = ZX 81, DR = Dragon 32, OR = Ori

TOP 30 GAMES (Retail)

Pos	Last	Title	Publisher	SP	AC	64	V20	81	DR	OR	Price
1	14	DALEY THOMPSON'S DECATHLON	Ocean	*							£7.90
2	4	FULL THROTTLE	Micromega	*							£6.95
3	3	SABRE WULF	Ultimate	*							£9.95
4	2	TORNADO LOW LEVEL	Vortex	*							£5.95
5	1	JET SET WILLY	Software Projects	*							£5.95
6	9	MATCH POINT	Psion	*							£5.95
7	15	LORDS OF MIDNIGHT	Beyond	*							£9.95
8	5	BEACH HEAD	Access/US Gold		*						£9.95
9	16	DECATHLON	Activision		*						£9.99
10	7	MONTY MOLE	Gremlin Graphics	*	*						£6.95
11	6	MICRO-OLYMPICS	Database	*	*	*					£6.95
12	27	RAPSCALLION	Bug-Byte	*							£6.95
13	—	OLYMPICON	Mitech	*							£5.95
14	8	3-D TANK DUEL	Real Time	*							£5.95
15	—	THE EVIL DEAD	Palace		*						£6.99
16	—	FIGHTER PILOT	Digital Integration	*							£7.95
17	—	ARABIAN NIGHTS	Interceptor		*						£7.00
18	—	WORLD CUP FOOTBALL	Artic	*							£6.95
19	19	STOP THE EXPRESS	Psion	*							£5.95
20	17	JACK AND THE BEANSTALK	Thor	*							£5.95
21	22	PSYTRON	Beyond	*							£7.95
22	13	TRASHMAN	New Generation/Quicksilva	*	*						£5.95
23	28	MUGSY	Melbourne House	*							£6.95
24	10	FOOTBALL MANAGER	Addictive	*	*	*					£6.95
25	—	B.C. BILL	Beau Jolly	*	*	*					£5.50
26	23	CAVELON	Ocean	*	*						£6.90
27	—	PERCY THE POTTY PIGEON	Gremlin Graphics		*						£7.95
28	18	AUTOMANIA	Micro-gen	*							£7.95
29	—	STAR TRADER	Bug-Byte	*							£6.95
30	12	BLUE THUNDER	Richard Willcox	*					*		£5.50

Compiled by MRIB Computer.

VIDEO GAMES (Dedicated Consoles)

Pos	Last	Title
1	(1)	POLE POSITION (Atari)
2	(3)	SPACE SHUTTLE (Activision)
3	(2)	SUPER COBRA (Parker)
4	(—)	PITFALL 2 (Activision)
5	(8)	MARIO BROTHERS (Atari)
6	(4)	POPEYE (Parker)
7	(25)	MS PAC-MAN (Atari)
8	(5)	ENDURO (Activision)
9	(7)	DEATH STAR BATTLE (Parker)
10	(6)	Q-BERT (Parker)
11	(—)	FROSTBITE (Activision)
12	(19)	GALAXIAN (Atari)
13	(—)	PHOENIX (Atari)
14	(12)	BATTLE ZONE (Atari)
15	(11)	FROGGER (Parker)
16	(14)	DONKEY KONG (CBS/Coleco)
17	(13)	SNOOPY VS THE RED BARON (Atari)
18	(9)	DIG DUG (Atari)
19	(10)	MOON PATROL (Atari)
21	(15)	PITFALL (Activision)
21	(21)	PAC-MAN (Atari)
22	(18)	BIG BIRD EGG CATCH (Atari)
23	(16)	RIVER RAID (Activision)
24	(17)	TUTANKHAM (Parker)
25	(24)	COOKIE MONSTER MUNCH (Atari)
26	(29)	SPACE INVADERS (Atari)
27	(20)	JUNGLE HUNT (Atari)
28	(27)	CENTIPEDE (Atari)
29	(22)	SMURFS (CBS/Ceoleco)
30	(30)	ROBOT TANK (Activision)

Compiled by MRIB Computer.

also selling well in mail order...

ATIC ATAC
(Ultimate)
BUMPING BUGGIES
(Bubble Bus)
CHUCK-E-EGG
(A&F Software)
COLDITZ
(Phipps Associates)
CYLON ATTACK
(A&F Software)
FIGHER PILOT
(Digital Integration)

FLIGHT PATH
(Anirog)
THE FOREST
(Phipps Associates)
FLYING FEATHERS
(Bubble Bus)

JET PAC
(Ultimate)
KRAKATOA
(Abbex)
MEGAWARZ
(Paramount)

NIGHT RUNNER
(Digital Integration)
OUTBACK
(Paramount)
PILOT 64
(Abbex)
RALLY SPEEDWAY
(Aventure International)
SPACE PILOT
(Anirog)
TEST MATCH
(CRL)

MAGIC POINTER

Here's a screen poke grid for you CBM 64 users. It will greatly simplify calculating the character and colour on the screen.

by M. R. HODGKINSON

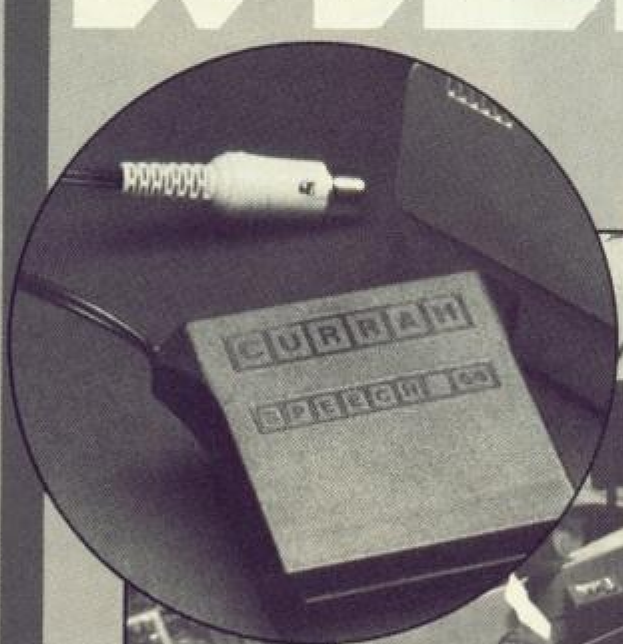


```
READY.

1 GOTO1000
10 POKE53272,(PEEK(53272)AND240)+12
20 FORI=12288TO12288+7:READA:POKEI,A:NEX
T:REM  REDEFINE @
30 DATA255,129,129,129,129,129,129,255
40 FORI=12528TO12528+7:READA:POKEI,A:NEX
T:REM  REDEFINE ^
50 DATA255,195,165,153,153,165,195,255
60 FORI=12512TO12512+7:READA:POKEI,A:NEX
T:REM  REDEFINE \
70 DATA255,0,0,0,0,0,0,0
80 GOTO10000
1000 PRINT"{CLR}";:POKE53280,7:POKE53281
,7:PRINTCHR$(149)
1010 PRINT"{CUR RT}{CUR RT}{CUR RT}{CUR
RT}{CUR RT}{CUR RT}CHARACTER/COLOUR SCRE
EN GRID"
1020 PRINT"{CUR RT}{CUR RT}{CUR RT}{CUR
RT}{CUR RT}{CUR RT}{*T}{*T}{*T}{*T}{*T}{
*T}{*T}{*T}{*T}{*T}{*T}{*T}{*T}{*T}{*T}{
*T}{*T}{*T}{*T}{*T}{*T}{*T}{*T}{*T}{*T}{
*T}{*T}{*T}"
1030 PRINT"{RED}{CUR RT}{CUR RT}{CUR RT}
THE AIM OF THIS LITTLE PROGRAM IS"
1040 PRINT"TO GREATLY SIMPLIFY CALCULATI
NG THE"
1050 PRINT"CHARACTER AND COLOUR POKES ON
 THE SCREEN";
1060 PRINT"MEMORY MAP"
1070 PRINT
1080 PRINT"{BLK}{CUR RT}{CUR RT}{CUR RT}
USE THE FOLLOWING KEYS TO CONTROL"
1090 PRINT"THE CURSOR:-"
1100 PRINTTAB(12)"'Z' MOVES LEFT
1110 PRINTTAB(12)"'X' MOVES RIGHT
1120 PRINTTAB(12)"';' MOVES UP
1130 PRINTTAB(12)"'/' MOVES DOWN
1140 PRINT"USE '=' TO 'MARK' YOUR DESIRE
D CO-ORD."
1150 PRINT"USE 'C' TO CANCEL A COORDINAT
E"
1165 PRINT
1170 PRINT"{RED}THE GRID COORDINATES ALT
ER IN RESPONSE"
1180 PRINT"TO THE CURSOR MOVEMENT. SIMPL
Y NOTE EACH";
1190 PRINT"COORDINATE AS YOU 'MARK' IT,
AND THEN"
1200 PRINT"USE IT TO PLAN YOUR DISPLAY"
1210 PRINT"{BLU}{CUR DN}{CUR RT}{CUR RT}
{CUR RT}{CUR RT}{CUR RT}{CUR RT}{CUR RT}
{CUR RT}{CUR RT}PRESS A KEY TO START"
1220 GETA$:IFA$=""THEN1220
1230 PRINT"{CUR UP}{CUR UP}{CUR UP}":FOR
U=0TO39:PRINT" ";:NEXT
1240 PRINT"{CUR RT}{CUR RT}{CUR RT}{CUR
RT}{CUR RT}{CUR RT}WAIT FOR THE DATA TO
BE READ"
1250 GOTO63000
10000 PRINT"{CLR}":POKE53280,1:POKE53281
,1
10010 FORT=0TO879:PRINT"{LT BLU}@";:NEXT
10020 FORS=0TO39:PRINT"{LT BLU}\";:NEXT
10030 P1=1064:P2=P1:C1=55336
10040 POKE650,128
10050 GETA$
10060 IFA$="Z"THENP2=P1-1:C1=C1-1
10070 IFA$="X"THENP2=P1+1:C1=C1+1
10080 IFA$=";"THENP2=P1-40:C1=C1-40
10090 IFA$="/"THENP2=P1+40:C1=C1+40
10100 IFA$="="THENPOKEC1,0
10110 IFA$="C"THENPOKEC1,14
10120 POKEP1,0:POKEP2,30
10130 P1=P2
10140 IFP1>1943THENP1=1943:C1=56215
10150 IFP1<1064THENP1=1064:C1=55336
10160 PRINT"{OR}{HOME}{CUR RT}{CUR RT}{C
UR RT}CHARACTER";P1;"{CUR RT}{CUR RT}{CU
R RT}{CUR RT}{CUR RT}COLOUR";C1
10170 GOTO10050
63000 PRINTCHR$(142)
63010 POKE52,48:POKE56,48:CLR
63020 POKE56334,PEEK(56334)AND254
63030 POKE1,PEEK(1)AND251
63040 FORI=0TO511:POKEI+12288,PEEK(I+532
48):NEXT
63050 POKE1,PEEK(1)OR4
63060 POKE56334,PEEK(56334)OR1
63070 GOTO10
```

TURN TO PAGE 104 FOR YOUR FREE INLAY CARD

WONDER WIDGETS



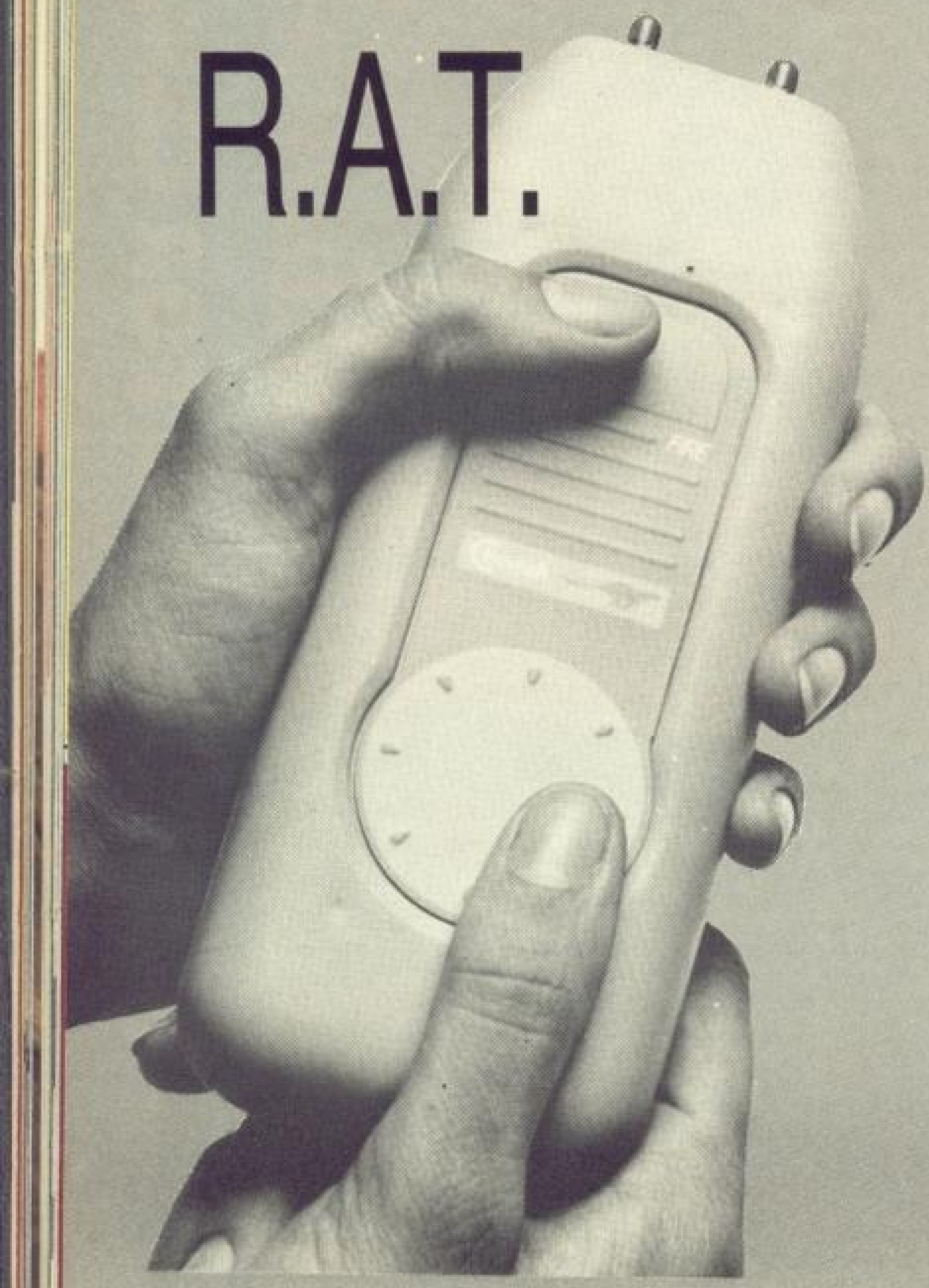


SAY IT with words on the '64. Yes, Currah have now converted their highly popular Spectrum noise box, giving 64 owners the power to produce strangulated verbals from the speakers of their tellies.

Speech quality is an improvement on the Spectrum version but it is still relatively easily confused by long words or complicated phrase strings. For example, while "Make me a cup of coffee" comes out intelligibly and clearly, the vocals collapse rather on "supercalifragilisticexpialidocious" (admittedly a severe test), giving up after "fragil" and just pronouncing each subsequent letter individually.

Another small gripe concerns the dreaded ROM wobble. (Those with very long

R.A.T.



FAMOUS RATS of history: The "dirty" one Cagney spoke of; Manuel's pet in Fawlty Towers; the early morning TV one called Roland. To this illustrious list may soon be added the one from Cheetah that controls your Spectrum.

R.A.T. — *Remote Action Transmitter* — is your actual infra-red controller. Look, ma, no wires! Cheetah reckon it'll put the joystick about level with the Dodo in terms of mass-appeal. But at nearly £30 a throw I don't think the Dodo's got much to worry about just yet. The R.A.T. consists of two parts. You hold the transmitter, an "ergonomically-designed" unit that looks like a reject from the model-making shop of Star Trek. It contrasts jarringly with the functional black box of the other part, the receiver, which plugs into the Spectrum's expansion slot.

The transmitter utilises two touch-sensitive pads (ex-ZX81 owners will feel right at home) for all control functions: a firing pad, with rapid-fire facility, and an eight-direction control pad below. Signals are fed to two infra-red diodes on the R.A.T.'s 'nose' and beamed directly to the receiver which can be anything up to 30ft away (for games playing at this distance binoculars are a necessary optional extra). The infra-red signals operate on a different frequency to TV remote control units so there's no fear of suddenly switching over to 'Dynasty' just when you've cracked the 60th screen of *Jet Set Willy*.

In action the R.A.T. works

memories will remember this phenomenon on the ZX81 rampacks.) So how anyone can undesign a cartridge for the 64 so that it sits in the vice-like cartridge socket and STILL wobbles — resulting in a re-setting of the beast — is beyond the ken of we mere hackers.

The speech unit also uses the monitor socket so the snobs with dedicated monitors won't be able to add this particular widget to their collection. The unit can echo the keyboard, or be used for speech from within BASIC. A SAY command is added; say "it with words" does. A small idiosyncrasy is that the rest of any multi-statement line (i.e. after the SAY command) is ignored. For machine code buffs full documentation is given on how to use the unit directly. The speech unit can be disabled so that non-speech programs which use the 4k area of memory (from 49152 upwards) which the unit uses, will run. It cannot, of course, be used with Simon's Basic or any other cartridges.

On the whole a very good package in a highly interesting new applications field — and, at £29.95, not bad value either.

DUNCAN GAMBLE

well. Cheetah claim that it will work with 'most' Kempston-compatible games without any additional software and it seemed to do just that with most of the games it was tested on. Reaction times are fast and the angle of acceptance for the infra-red beam seems fairly wide.

Having no moving parts to contend with takes some getting used to and a control disc just doesn't have the same tactile feel that a joystick gives — too many video game companies have discovered this.

Cheetah deserve a big hand for the R.A.T. It's innovative, it's easy to use — and it's British! But at £29.95 it's not going to take over the world just yet. —R.B.

DATAPEN LIGHTPEN

TRENDIEST LIGHT has got to be the lightpen. Budding Leonardos of the video age can be spotted instantly. The blank, expressionless stare caused by working within a centimetre of the CRT; the arthritic fingers from manipulating numerous key combinations while drawing.

Welcome, then, the Datapen lightpen, as seen on other micros and now appearing on the Spectrum for the first time. It's neat, relatively compact, simply plugs into the Spectrum's expansion slot and is ready to go. No dangling external battery packs or complicated key sequences to memorise.



All electronics are packed inside the pen body itself. A useful button on the outside switches in the computer only when you are satisfied the pen is in the correct position on the screen. A red LED on the back of the pen lights to confirm acquisition of valid video data.

Software included with the Datapen features an introductory program, a music composer, a user-defined graphics designer and a full hi-res drawing program. This is capable of producing pictures to pixel accuracy and includes pre-defined shapes for cicle, restangle and triangle drawing. Freehand drawing is, surprisingly, not catered for. The makers claim the program contains enough commands to make this ". . unnecessary".

In use the Datapen is comfortable to hold and very easy to control. Most programs use x, y-axis scanning bars which are fairly fast and don't require the pen to be held in position for long. A friendly bleep tells you all is well when an action is complete. The pen doesn't seem too bothered about exterior lighting conditions.

The Datapen lightpen is a worthwhile addition to the Spectrum artist's electronic palette. £29.00 buys you a ticket to creative contentment. — R.B.

POSHWARE CORNER

DELILAH IS wearing the very latest in off-the-shoulderware. Cut in daring, tear-proof Cordura nylon these new carrying bags from the House of Inmac are the very epitome of what's 'right' for the computer owner of taste.

Generous thick, high-density foam padding cradles snuggly the smooth form of the Apple II or Apricot computers — the machines that speak of 'class'. There are even matching accessory cases for disc drives and monitors. Designer handles and adjustable shoulder straps complement the whole ensemble and industrial grade zips add that working class touch that is considered *tres chic* in these troublesome times.

The 'low end' of the market, however, is catered for with a bag for the BBC. Well, we have to consider those more unfortunate than ourselves.

The Inmac Carry Cases come ready-to-wear for less than the price of a good meal at Fiorucci's. If we can be vulgar for the moment, they cost from between £17.00 to £27.50 each. — R.B.



MAZE OF GOLD

There's gold in that thar maze! Type in this prog for almost instant riches. Use keys Z, X, ; and / for direction control.



```
1 A=7680
2 SC=0
3 POKE36869,255
5 POKE36879,9
10 TI$="000000"                FE F
15 PRINT"{CLR}{WHT}{CUR UP}
 EF E"
20 PRINT"EEEE EEEEEE EEEE EEEEE"      EF"
25 PRINT"{CUR UP}          E
30 PRINT"E EEEEEE EEEEEEEEEEE E"
35 PRINT"{CUR UP}               E"
40 PRINT"EEEEEEE EEEEEE EEEEEEE"
45 PRINT"{CUR UP}F   EF
50 PRINT"E EEEEEEEEEEEEEEE EEE"
60 PRINT"EEEEEE EEEEEEEEE E E E"
65 PRINT"{CUR UP}          FE     F E    E"
70 PRINT"EEEE EEEEEE EEEEE E EE"
80 PRINT"E EEEEEEEEEEEEEEEEE E"
85 PRINT"{CUR UP}  F        EF "
90 PRINT"EEEEEEEE EEEEEE EEEEEE"
95 PRINT"{CUR UP} F          E  F    E
100 PRINT"EEEEEEEEEEEEEEEE EEEEE"
101 PRINT"{CUR UP}{CUR RT}{CUR RT}{CUR R
T}{CUR RT}{CUR RT}{CUR RT}{CUR RT}{CUR R
T}{CUR RT}{CUR RT}{CUR RT}{CUR RT}{CUR R
T}{CUR RT}{CUR RT}E E"
102 PRINT"{CUR RT}{CUR RT}{CUR RT}{CUR R
T}{CUR RT}{CUR RT}{CUR RT}{CUR RT}{CUR R
T}UITK{CUR RT}{CUR RT}EVE"
103 PRINT"{CUR RT}{CUR RT}{CUR RT}{CUR R
T}{CUR RT}{CUR RT}{CUR RT}{CUR RT}{CUR R
T}{CUR RT}{CUR RT}{CUR RT}{CUR RT}{CUR R
T}{CUR RT}EEE"
150 POKEA,4
155 GETA$
160 IFA$="Z"THENA=A-1:POKEA+1,32:GOTO400
0
165 IFA$="X"THENA=A+1:POKEA-1,32:GOTO400
0
170 IFA$=";"THENA=A-22:POKEA+22,32:GOTO4
000
175 IFA$="/"THENA=A+22:POKEA-22,32:GOTO4
000
180 IFPEEK(A)=5THEN1000
183 IFPEEK(A)=22THEN5000
185 IFPEEK(A)=6THEN2000
186 IFTI$>"000060"THEN3000
190 GOTO150
200 END
1000 POKE36879,27
1010 PRINT"{CLR}{PUR}{CUR DN}{CUR DN}{CU
R DN}{CUR RT}{CUR RT}{CUR RT}{CUR RT}LIM
 NJK{RED} OKNO !"
1015 PRINT"{CUR DN}{BLK}****************
******"
1020 FORT=1TO3000:NEXT
1025 GOTO1
2000 SC=SC+5
2010 GOTO150
3000 POKE36879,27
3010 PRINT"{CLR}{PUR}{CUR DN}{CUR DN}{CU
R DN}{CUR RT}{CUR RT}{CUR RT}{CUR RT}LIM
 JNP IMQ IR"
3015 PRINT"{RED}{CUR DN}{CUR RT}{CUR RT}
{CUR RT}{CUR RT}{CUR RT}{CUR RT}{CUR RT}
{CUR RT}OSTK.."
3020 PRINT"{CUR DN}{BLK}****************
******"
3023 PRINT"{CUR DN}{CUR DN}{CUR DN}{CUR
DN}{CUR RT}{CUR RT}{CUR RT}GHIJK-0"
3025 FORT=1TO3000:NEXT
3030 GOTO1
4000 POKE36878,15
4001 FORI=160TO240STEP5
4002 POKE36876,I
4003 FORM=1TO100:NEXTM
4004 POKE36876,0
4005 GOTO180
5000 POKE36879,27
5010 PRINT"{CLR}{PUR}{CUR DN}{CUR DN}{CU
R DN}{CUR RT}{CUR RT}{CUR RT}{CUR RT}{CU
R RT}{CUR RT}{CUR RT}{CUR RT}UITK."
5015 PRINT"{RED}{CUR DN}****************
******"
5020 PRINT"{BLU}{CUR DN}{CUR DN}{CUR DN}
{CUR RT}{CUR RT}GHIJK- ";SC
5030 FORT=1TO4000:NEXT
5040 GOTO1
```

NOTE: This is a TRANSLATED listing. All instructions in 'wavy' brackets (including the brackets) should NOT be typed in but followed, i.e. CUR RT = cursor right.

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for any VIC 20

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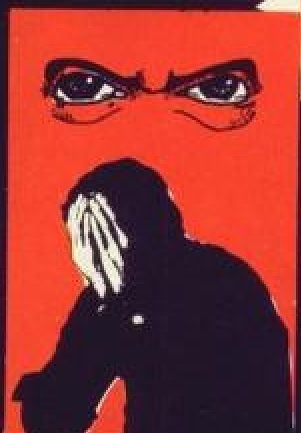


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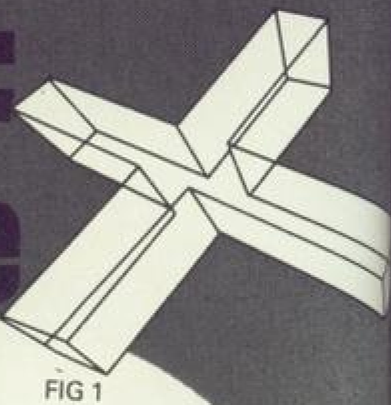
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3D ROTATION: The Next Move



LAST MONTH'S machine code allowed you to rotate the outline of a plane around your TV screen in 3D. Problem is, though, you're stuck with the plane whether you like it or not, and there's no particularly easy way to change it. Fortunately, my endeavour to correct this dreadful misdemeanour is here in the form of Listing 1. Simply tap it in and SAVE, making it auto-run from line 10. If you don't have a Microdrive, then don't bother with the drive, SAVE and LOAD routines at lines 5500-5570 and 6500-6560 respectively. If you don't have an Interface 1 connected then you'll find that the computer's a bit cagey about accepting some of those lines anyway. Immediately after the recording of Listing 1 make a copy of the machine code from last month's BIG K.

The program's a sort of 3D design/editor, allowing you to construct an object, watch it build up on the screen, view it from various different postions and at varying sizes. There are SAVE/LOAD options allowing you to store an object on tape or Microdrive and return to it at a later date, assuming it hasn't been accidentally wiped in the meantime. After loading Listing 1 (it will automatically load the machine code) you're greeted with, of all things, a black screen. At this point, you'd either load an object from tape/drive or start off from scratch by creating a new object. The program's driven by single key commands, as listed below. Simply press the appropriate key and the computer will do its stuff:

C – This one lets you change the current INK, PAPER and BORDER colours. Due to the problems created by the Spectrum's restrictive attribute system, it's not possible to make objects in multiple inks.

E – This is the End option. Press this and you'll get the 'STOP statement' report. If you inadvertently press this key then 'GOTO 100' will set you back on the right lines with no harm done.

Q – If you've got a ZX Printer then this should give you a screen copy.

S – This one lets you save your masterpiece to either tape (with the option of verifying) or to one of the 8 possible Microdrives (have you ever seen a Spectrum with 8 drives, 'cos I ain't?).

L – Lets you LOAD an object back in from tape/drive, "binning" any object you were working on at the time. So use with care.

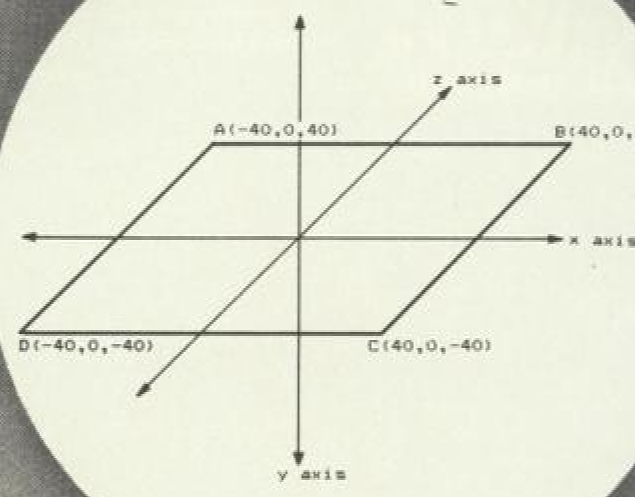
M – Allows you to enlarge or diminish an object. After choosing which of the two possible options you require, you're asked for a magnification or diminishing factor. If you squash an object too much then you'll find that even when you re-magnify it to its former size it might look slightly different due to small rounding errors when it was a little 'un. Going to the other extreme, you'll find that your Spectrum won't be able to fit the whole object on the screen at one time. Getting a bit upset about this state of affairs it will refuse to draw any lines that don't completely fit on the screen, with some rather odd-looking results.

Keys: X, Y and Z — As with last month's demo prog, these keys allow you to rotate the object in the appropriate axis.

Digit keys 1 to 9 — Again, in common with last month's prog, these keys define how much the object rotates when you press one of the rotation keys.

The final three commands are associated with actually entering the data needed to construct an object. As I mentioned last month, 3D points are represented using x, y and z coordinates. The program uses the method of defining 3D objects as points joined (or not, as the case may be) by lines. Imagine that you had in your possession a piece of very rare and expensive 3D graph paper. Given the coordinates of a point on the paper, then you could place the tip of a pen in the appropriate position. Given another point you could draw a straight line from the first point to the second, or you could simply leave it blank. You could then continue in the same manner through a third and fourth point etc. This is exactly how the program builds objects up, using lines joining points in three dimensional space.

FIG 1



There's only one problem with this method; it isn't possible to draw curves. This is no great handicap, however, since in most applications you don't need to draw curves anyway and, when these are required, you can often form approximations of curves using several straight lines. The commands to construct objects are as follows:

T – If you press this then the computer will ask for the x, y and Z coordinates of the next point. The computer will then move its imaginary pen from its old position to the one specified, drawing a line as it goes.

P – Much as the 't' command, except that the machine doesn't bother to actually draw in the line between the old and new points.

D – Press this and the last line or jump ('p' line) that you entered is instantly scrapped (if it's a line, then you'll actually see it disappear from the screen representation of the object).

There are many different ways of entering the data for an object into a program such as this. Some are easy for computers while others are easier for us humans. The method I've used is relatively simple for computers, but it's not the easiest of methods for us. However, since the object actually builds up on the screen as you enter the data for it, it's not hard to spot mistakes and quickly erase them using the 'd' command before they become too much of a problem.

Now to some real objects. The first simple example of an object is a plain old 2D square as shown in fig. 1. It has four points on it, so you need to enter five sets of data. "FIVE", I hear you exclaim. "Why five?" The answer is that to make objects rotate properly the origin must lie directly in an object's centre. The first set of coordinates simply allows you to move the pen from its resting position at the origin to the first point on the object. Even if you use "t" for the first entry, the computer doesn't draw a line from the origin since it knows that the first set of coordinates are simply there to get the pen in the correct starting

FIG 2

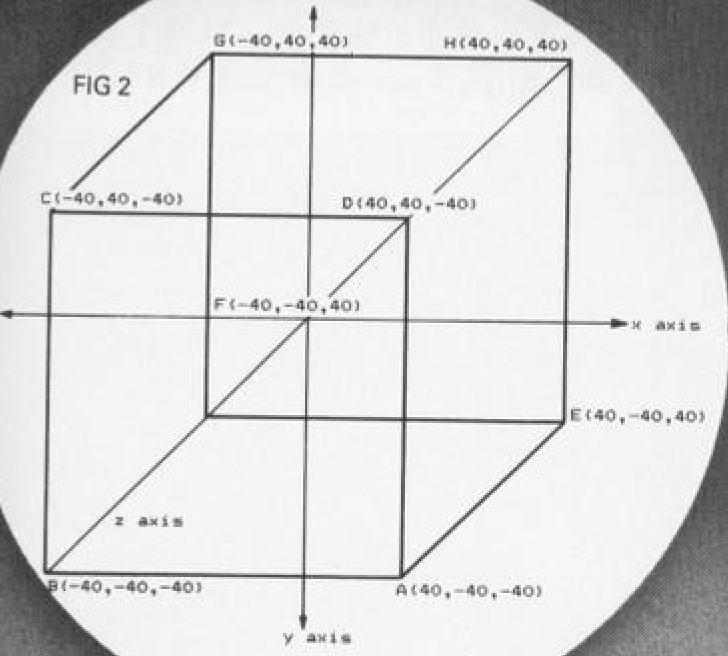
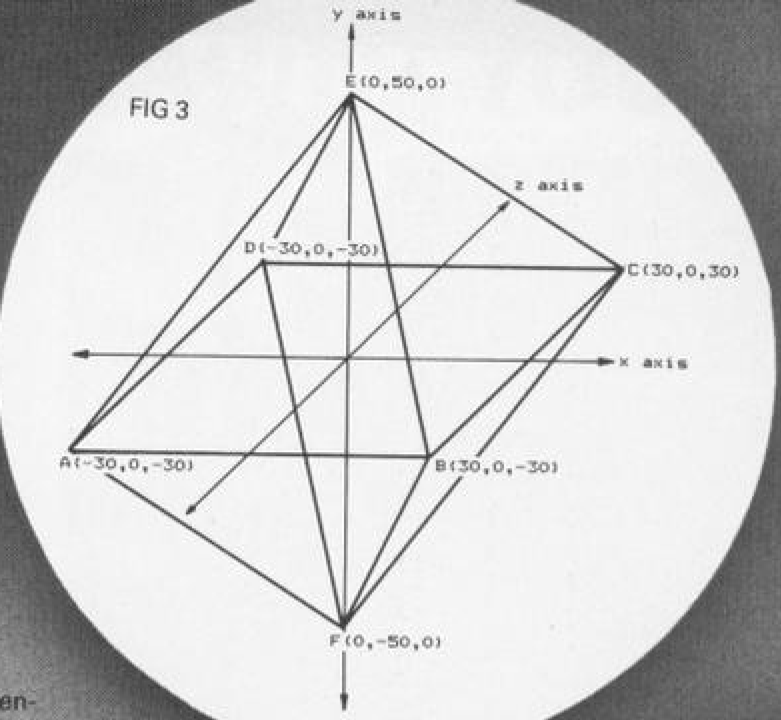


FIG 3



position.

You've probably noticed that the four points on the square have been marked A, B, C and D. To be certain that the pen visits every point composing an object and draws all the necessary lines it's a good idea to draw a picture of your object and work out your route beforehand, labelling the points you're going to 'visit' as you go. It's also useful to write down beside each point its coordinates, thus making the transferring of the object into the computer a simple matter of typing in the coordinates in the right order. The data for the square is given below. Simply type the preceding letter followed by the three coordinates in response to the computer's prompts.

p,−40,0,40 : t,40,0,40 :
t,40,0,−40 : t,−40,0,−40 :
t,−40,0,40

You can rotate the object even if it is in an uncompleted state and therefore watch new lines being added from any vantage point you like.

The next example, shown in fig. 2, is a cube. To make matters complicated, there are 12 lines to contend with but only 8 points. Unlike the square, it's not possible to draw it without going over a line twice. The data for the cube is as follows. Read across the page:

p,40,−40,−40 : t,−40,−40,−40 :
t,−40,40,−40 : t,40,40,−40 :
t,40,−40,−40 : t,40,−40,40 :
t,−40,−40,40 : t,−40,40,40
t,40,40,40 : t,40,−40,40 :
p,−40,−40,−40 : t,−40,−40,40
p,−40,40,−40 : t,−40,40,40
p,40,40,−40 : t,40,40,40

The method I've used to draw it is to construct two squares parallel to one another, with one line joining them, and then go back with the 'p' command and draw in the neglected three lines. I'm sure that this method isn't the quickest and most efficient way, perhaps you would like to calculate the least number of moves you'd need to draw a cube.

Notice how both the objects are about 80 units in size — in height, width and depth. These are about the largest dimensions that will allow an object to fit comfortably onto the TV screen from all possible vantage points. If you do find that you've defined an object a shade too large then you can always squash it a bit with the 'm' command. There are definite maximum limits on the size of coordinates: 127 and 128 respectively.

The next object is a sort of crystal, two pyramids (one inverted) on top of each other. The crystal is shown in fig. 3 and the data is given below:

p,−30,0,−30 : t,30,0,−30 :
t,30,0,30 : t,−30,0,30 :
t,−30,0,−30 : t,0,50,0 :
t,30,0,30 :t,0,−50,0 :
t,−30,0,−30 : p,30,0,−30 :
t,0,50,0 : t,−30,0,30 :
t,0,−50,0 : t,30,0,−30

This object has a much better "flow" to it than the cube, allowing you to draw it completely only using one "p" command. Notice how, in certain orientations, the object looks rather strange. This effect is a result of the lack of hidden line suppression when drawing the object. As well as leading to a lack of solidity in the representation, it gives rise to arbitrary situations where it's impossible for the brain to work out whether one line is closer than another, with some weird results! Of course, there are ways and means of preventing hidden lines being drawn, but the methods are very mathematicaly involved and therefore painfully slow (even in machine code) on small micros such as the Spectrum. So unless you've got access to a mainframe, I'm afraid that hidden lines are here to stay. Thankfully, there are a few "cheat" methods — that rely solely on particular properties of an object to suppress hidden lines — that can usefully be employed.

The last 3D object example is a sort of "+" sign. It is the most complex of the objects — there are 28 lines. The data is shown in fig. 4. Notice how this object rotates a little more slowly than the others due to its greater complexity.

```
 10 REM ***********************
 20 REM * 3D Rotater Program  *
 30 REM *  By Richard Taylor  *
 40 REM *       July,1984     *
 50 REM ***********************
 60 REM
 70 BORDER 0: PAPER 0: INK 7
 80 CLEAR 58051: LOAD ""CODE
 90 CLS : GO SUB 9000: REM Init
ialise
 100 GO SUB 1000: REM Rotate obj
ect
 110 IF a$="d" OR a$="D" THEN GO
 SUB 2000
 120 IF a$="m" OR a$="M" THEN GO
 SUB 3000
 130 IF a$="c" OR a$="C" THEN GO
 SUB 4000
 140 IF a$="s" OR a$="S" THEN GO
 SUB 5000
 150 IF a$="l" OR a$="L" THEN GO
 SUB 6000
 160 IF a$="e" OR a$="E" THEN ST
OP
 170 IF a$="p" OR a$="P" THEN GO
 SUB 7000
 180 IF a$="t" OR a$="T" THEN GO
 SUB 8000
 190 IF a$="q" OR a$="Q" THEN CO
PY
 200 GO TO 100
1000 REM Rotate Object
1010 IF o$<>"" THEN RANDOMIZE US
R 58084
1020 LET a$=INKEY$
1030 IF a$>="1" AND a$<="9" THEN
 LET step=VAL a$: BEEP .1,30: GO
 TO 1010
1040 IF a$="x" THEN LET a=step:
GO TO 1700
1050 IF a$="X" THEN LET a=-step:
 GO TO 1700
1060 IF a$="y" THEN LET a=step:
GO TO 1800
```


CONTINUED ON PAGE 100

3D ROTATION: The Next Move

Continued from page 99

```
1080 IF a$="z" THEN LET a=step:
GO TO 1900
1090 IF a$="Z" THEN LET a=-step:
 GO TO 1900
1100 RETURN
1700 POKE 58052,PEEK 58052+a
1710 LET b=PEEK 58052: IF b<180
THEN GO TO 1010
1720 IF SGN a=-1 THEN POKE 58052
,b-76
1730 IF SGN a=1 THEN POKE 58052,
b-180
1740 GO TO 1010
1800 POKE 58053,PEEK 58053+a
1810 LET b=PEEK 58053: IF b<180
THEN GO TO 1010
1820 IF SGN a=-1 THEN POKE 58053
,b-76
1830 IF SGN a=1 THEN POKE 58053,
b-180
1840 GO TO 1010
1900 POKE 58054,PEEK 58054+a
1910 LET b=PEEK 58054: IF b<180
THEN GO TO 1010
1920 IF SGN a=-1 THEN POKE 58054
,b-76
1930 IF SGN a=1 THEN POKE 58054,
b-180
1940 GO TO 1010
2000 REM Delete last line
2010 IF o$="" THEN RETURN
2020 LET o$=o$( TO LEN o$-4)
2030 BEEP .1,30: RETURN
3000 REM Magnify/diminish object
3010 INPUT "MAGNIFY OR DIMINISH?
 (M/D) "; LINE b$
3020 IF LEN b$<>1 THEN GO TO 301
0
3030 IF b$="d" OR b$="D" THEN GO
 TO 3100
3040 IF b$<>"m" AND b$<>"M" THEN
 GO TO 3010
3050 INPUT "MAGNIFICATION FACTOR
? ";a
3060 IF a<1 THEN GO TO 3050
3070 GO TO 3500
3100 INPUT "DIMINISHING FACTOR?
";a
3110 IF a<1 THEN GO TO 3100
3120 LET a=1/a
3500 INPUT INKEY$: PRINT #0; FLA
SH 1:"            PLEASE WAIT
      "
3510 IF o$="" THEN INPUT INKEY$:
 RETURN
3520 LET d$=o$: FOR d=2 TO LEN o
$ STEP 4
3530 FOR e=0 TO 2
3540 LET b=CODE o$(d+e)
3550 IF b<128 THEN LET b=b*a: IF
 b>127 THEN GO TO 3800
3560 IF b>127 THEN LET b=b-256:
LET b=b*a: LET b=b+256: IF b>255
 OR b<128 THEN GO TO 3800
3570 LET o$(d+e)=CHR$ b: NEXT e:
 NEXT d
3580 INPUT INKEY$
3590 LET d$="": RETURN
3800 INPUT INKEY$: BEEP 1,-30: L
ET o$=d$: LET d$="": RETURN
4000 REM Change colours
4010 INPUT "New BORDER colour? (
0-7) ";a
4020 IF a<0 OR a>7 THEN GO TO 40
10
4030 INPUT "New PAPER colour? (0
-7) ";b
4040 IF b<0 OR b>7 THEN GO TO 40
30
4050 INPUT "New INK colour? (0-7
) ";c
4060 IF c<0 OR c>7 OR b=c THEN G
O TO 4050
4070 BORDER a: PAPER b: INK c
4080 CLS : RETURN
5000 REM Save to Microdrive/Tape
5010 INPUT "SAVE TO MICRODRIVE O
R TAPE?     (M/T) "; LINE b$
5020 IF b$="" THEN GO TO 5010
5030 IF b$="m" OR b$="M" THEN GO
 TO 5500
5040 IF b$<>"t" AND b$<>"T" THEN
 GO TO 5010
5050 GO SUB 5800: REM Get name
5060 DIM x$(LEN o$): LET x$=o$:
SAVE c$ DATA x$()
5070 GO SUB 5900
5080 IF b$="n" OR b$="N" THEN RE
TURN
5090 IF b$<>"y" AND b$<>"Y" THEN
 GO TO 5070
5100 VERIFY c$ DATA x$(): RETURN
5500 GO SUB 5800
5510 INPUT "Which drive? (1-8) "
; LINE b$
5520 IF LEN b$<>1 THEN GO TO 551
0
5530 IF b$<"1" OR b$>"8" THEN GO
 TO 5510
5540 OPEN #4;"m";VAL b$;c$
5550 PRINT #4;o$
5560 CLOSE #4
5570 RETURN
5800 INPUT "Filename? "; LINE c$
5810 IF c$="" OR LEN c$>10 THEN
GO TO 5800
5820 RETURN
5900 INPUT "Do you wish to Verif
y? (y/n) "; LINE b$
5910 IF LEN b$<>1 THEN GO TO 590
0
5920 RETURN
6000 REM Load from Drive/Tape
6010 INPUT "LOAD FROM MICRODRIVE
 OR TAPE?    (M/T) "; LINE b$
6020 IF LEN b$<>1 THEN GO TO 601
0
6030 IF b$="m" OR b$="M" THEN GO
 TO 6500
6040 IF b$<>"t" AND b$<>"T" THEN
 GO TO 6010
6050 INPUT "Filename? (ENTER for
 first file) "; LINE c$
6060 IF LEN c$>10 THEN GO TO 605
0
6070 LOAD c$ DATA x$(): LET o$=x
$
6080 RETURN
6500 INPUT "Which drive? (1-8) "
; LINE b$
6510 IF LEN b$<>1 OR b$<"1" OR b
$>"8" THEN GO TO 6500
6520 GO SUB 5800
6530 OPEN #4;"m";VAL b$;c$
6540 INPUT #4;o$
6550 CLOSE #4
6560 RETURN
7000 REM Add new point
7010 GO SUB 7500
7020 LET o$=o$+CHR$ 0+e$
7030 RETURN
7500 INPUT "X displacement? ";a
7510 IF a<-128 OR a>127 OR a<>IN
T a THEN GO TO 7500
7520 IF SGN a=-1 THEN LET a=a+25
6
7530 INPUT "Y displacement? ";b
7540 IF b<-128 OR b>127 OR b<>IN
T b THEN GO TO 7530
7550 IF SGN b=-1 THEN LET b=b+25
6
7560 INPUT "Z displacement? ";c
7570 IF c<-128 OR c>127 OR c<>IN
T c THEN GO TO 7560
7580 IF SGN c=-1 THEN LET c=c+25
6
7590 LET e$=CHR$ a+CHR$ b+CHR$ c
7600 RETURN
8000 REM Add new line
8010 IF o$="" THEN GO TO 7000
8020 GO SUB 7500: LET o$=o$+CHR$
 1+e$
8030 RETURN
9000 REM Initialise
9010 LET o$=""
9020 LET step=3
9030 POKE 58052,0
9040 POKE 58053,0
9050 POKE 58054,0
9060 RETURN
```

DATA FOR '+':–

p,5,–5,–10 :	t,40,–5,–10 :	t,40,5,–10 :	t,5,5,–10 :
t,5,5,10 :	t,40,5,10 :	t,40,–5,10 :	t,5,–5,10 :
p,40,5,10 :	t,40,5,–10 :	p,40,–5,10 :	t,40,–5,–10 :
p,5,5,–10 :	t,5,40,–10 :	t,–5,40,–10 :	t,–5,5,–10 :
t,–5,5,10 :	t,–5,40,10 :	t,5,40,10 :	t,5,5,10 :
p,–5,40,10 :	t,–5,40,–10 :	p,5,40,10 :	t,5,40,–10 :
p,–5,5,–10 :	t,–40,5,–10 :	t,–40,–5,–10 :	t,–5,–5,–10 :
t,–5,–5,10 :	t,–40,–5,10 :	t,–40,5,10 :	t,–5,5,10 :
p,–40,–5,10 :	t,–40,–5,–10 :	p,–40,5,10 :	t,–40,5,–10 :
p,–5,–5,–10 :	t,–5,–40,–10 :	t,5,–40,–10 :	t,5,–5,–10 :
t,5,–5,10 :	t,5,–40,10 :	t,–5,–40,10 :	t,–5,–5,10 :
p,5,–40,10 :	t,5,–40,–10 :	p,–5,–40,10 :	t,–5,–40,–10 :

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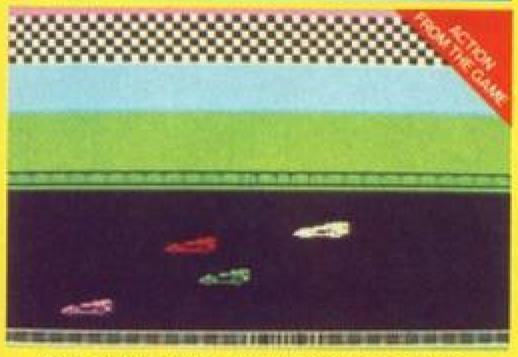


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ACTUAL PROGRAMME OUTPUT

```
SCORES FOR FIXTURE WEEK 3
1  Addictive R.   v Stourvale A
               5    0
2  Corinthians    v Richmond Utd
               2    2
3  Wimborne W.    v Kings Arms
               2    1
4  AFC Spectrum   v Red Lion
               1    1
5  Poole OB       v Charminster
               3    0
```

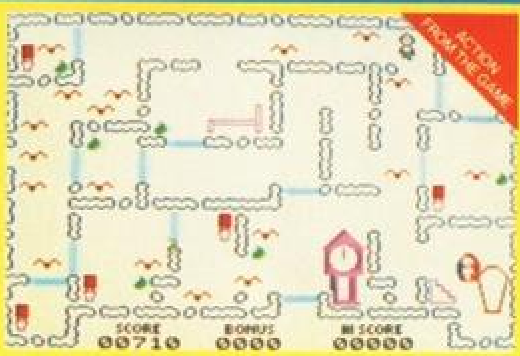
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+



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Bomber's away — and so are you! Your task, to seek out hostile forces concealed within a vast mountain cavern network. As you pilot your plane through an ever-narrowing tunnel of solid rock, keep your eyes peeled for enemy fuel dumps. Only by taking these out as you pass overhead can you hope to keep your own fuel supply topped up and thus keep flying. Prang a rock and you perish. Keep a cool head, keep flying and above all keep bombing! The name of the game is survival. Not for the claustrophobic!

```
10REM ************************
20REM Written and designed by
30REM      James McPherson
40REM ************************
50:
60:
70?&72=50:?&73=&80
80MODE7
90VDU 23;8202;0;0;0;
100DIM S%(10),N$(10)
110FOR Q%=1 TO 10
120S%(Q%)=(11-Q%)*100
130N$(Q%)="James McPherson"
140NEXT
150PROCintro
160PROCsetup
170S%=15:FUEL%=300
180?&74=S%:J%=15
190?&76=J%-S%:SC%=0
200LIVE%=3
210PROCmove
220END
230:
240:
250DEF PROCsetup
260ENVELOPE 3,1,50,-75,25,3,3,3,126,0,
0,-1,126,126
270PRINT TAB(0,0);CHR$134;CHR$157;CHR$
132;
280PRINT TAB(0,1);CHR$134;CHR$157;CHR$
132;
290PRINT TAB(0,2);CHR$134;CHR$157;CHR$
132;"====================================
==";
300FOR Q%=3 TO 24
310PRINT TAB(0,Q%);CHR$132;CHR$157;CHR
$147;
320NEXT
330PRINT TAB(5,1);"FUEL="
340PRINT TAB(17,1);"SCORE="
350PRINT TAB(30,1);"LIVES=3"
360PROCmc
370ENDPROC
380:
390:
400DEF PROCmove
410X%=10:Y%=15
420XB%=10:YB%=4
430FLAG%=0
440C$=CHR$133+">"
450REPEAT
460X1%=X%:Y1%=Y%
470FUEL%=FUEL%-1
480SC%=SC%+1
490PRINT TAB(10,1);FUEL%;" "
500PRINT TAB(23,1);SC%
510IF FUEL%<0 THEN PROCend
520PRINT TAB(X%-1,Y%);"  "
530Y%=Y%-INKEY(-105)+INKEY(-73)+(Y%>20)
-(Y%<2)
540X%=X%-INKEY(-67)+INKEY(-98)-(X%<2)+
(X%>20)
550IF INKEY(-1) AND FLAG%=0 THEN XB%=X
%+1:YB%=Y%:FLAG%=1:ENVELOPE 1,3,-1,-2,-4
,30,30,30,126,0,0,-2,126,126:SOUND 3,1,2
00,1:FUEL%=FUEL%-5
560IF ?(HIMEM+X%+1+Y%*40)=255 THEN PRO
Cend
570PRINT TAB(X%,Y%);C$
580IF TIME>500 AND S%>3 THEN TIME=0:S%
=S%-1
590IF S%<6 THEN S%=6
600CALL&C00
610J%=J%+RND(5)-3+(J%>21)*2-(J%<S%+5)*
2
```

CAVERN BOMBER

by JAMES McPHERSON

```
 620?&74=S%
 630?&76=J%-S%
 640IF RND(20)=1 THEN PRINT TAB(38,J%);
CHR$135;"^";
 650IF FLAG%=0 THEN GOTO 460
 660PRINT TAB(XB% 1,YB%);" "
 670YB%=YB%+1
 680PO%=?(HIMEM+XB%+YB%*40)
 690IF YB%>22 OR XB%<2 OR PO%=255 THEN
FLAG%=0:SOUND 0, 15,2,3:GOTO 720
 700IF PO%=94 THEN  ENVELOPE1,1,64, 96,
32,15,15,15,126,0,0, 1,126,126:SOUND 1,1
,100,3:FLAG%=0:PRINT TAB(XB%,YB%);" ":FU
EL%=FUEL%+100:SC%=SC%+10:GOTO 720
 710PRINT TAB(XB%,YB%);"Y"
 720UNTIL 0
 730ENDPROC
 740:
 750:
 760REM ** Type the machine code **
 770REM ** in carefully or else  **
 780REM **  it may destroy the   **
 790REM **    whole program.     **
 800:
 810:
 820DEF PROCmc
 830FOR I%=0 TO 2 STEP 2
 840P%=&C00
 850[OPT I%
 860LDA £&78
 870STA &70
 880LDA £&7C
 890STA &71
 900LDA £255
 910STA &75
 920LDX £22
 930.LOOP1
 940LDY£3
 950.LOOP2
 960INY
 970LDA (&70),Y
 980DEY
 990STA(&70),Y
 1000INY
 1010CPY £39
 1020BNE LOOP2
 1030LDA &76
 1040CMP £0
 1050BNE LESS2
 1060INC &76
 1070LDA &74
 1080CMP £0
 1090BEQ LESS
 1100LDA£147
 1110STA&75
 1120DEC &74
 1130.LESS
 1140.LESS2
 1150DEC &76
 1160LDA&72
 1170CLC
 1180ADC£1
 1190STA&72
 1200LDA&73
 1210ADC£0
 1220STA&73
 1230LDA&75
 1240STA(&70),Y
 1250LDA£255
 1260STA&75
 1270LDA &70
 1280CLC
 1290ADC £40
 1300STA&70
 1310LDA&71
 1320ADC£0
 1330STA&71
 1340DEX
 1350BNE LOOP1
 1360RTS:]
 1370NEXT
 1380ENDPROC
 1390:
 1400:
 1410DEF PROCend
 1420SOUND 0,3,200,1:SOUND 1,3,0,2
 1430LIVE%=LIVE%-1
 1440PRINT TAB(36,1);LIVE%
 1450F%=0
 1460FOR Z%=1 TO 23
 1470IF ?(HIMEM+X%+Z%*40)=147 OR ?(HIMEM
+X%+Z%*40)=32 THEN F%=F%+1
 1480IF F%>S%/2 THEN Y%=Z%:Z%=23
 1490NEXT
 1500PRINT TAB(X%-1,Y%);CHR$135;">"
 1510FOR Q=1 TO 5000
 1520NEXT
 1530IF LIVE%>0 AND FUEL%>0  THEN ENDPRO
C
 1540CLS
 1550PROCw("You scored "+STR$(SC%),41)
 1560PROCw("and had "+STR$(FUEL%)+" fuel
units left",44)
 1570FOR Q=1 TO 7000
 1580NEXT
 1590PROChiscores
 1600CLS
 1610PROCw("Do you want another game <Y/
N>",42)
 1620A$=GET$
 1630IF A$="N" THEN CLS:END
 1640IF A$<>"Y" THEN VDU7:GOTO 1610
 1650CLS
 1660GOTO 160
 1670END
 1680ENDPROC
 1690:
 1700:
 1710DEF PROCw(W$,L%)
 1720A%=18-LEN(W$)/2
 1730IF L%>24 THEN L%=L%-30:GOTO 1760
 1740PRINT TAB(A%,L%);CHR$R%;W$
 1750ENDPROC
 1760R%=RND(7)+128
 1770A%=A%-1
 1780FOR Q%=L% TO L%+1
```


Continued overleaf


THE GREAT SPACE
LEGEND



RACE

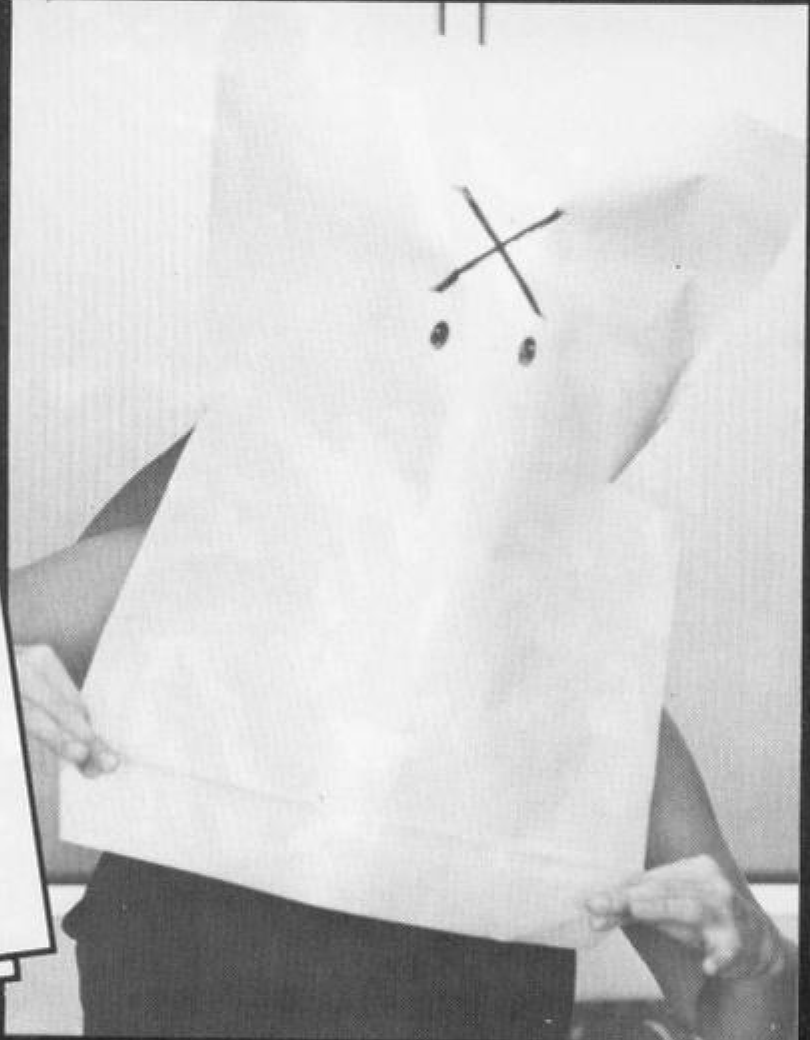
MOVI SOFT 2

Letters to BIG K

WANNA WIN A FIVER?

Yes, you too can join the formidable team of literati assembled on this here double-page spread and end up RICHER by FIVE WHOLE POUNDS! (If we publish your letter, that is.)

Scend your Scenario to . . .
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IS THE WORLD'S SECOND BEST COMPUTER MAG BORING?

Congratulations on having the same 'whistle after me' attitude in computing as Daley Thompson has in sport. You've won the 1984 Steven Craig Best Laugh Award for your Rubber Keyboard feature (BIG K, Aug.). BIG K isn't just full of boring disassemblers and benchmarks like the weaklies.

I recently saw *Gremlins* on release in Canada, and I'm sending you some pics that weren't available for your 'Celluloid' feature (BIG K, Sept.). Let me tell you, *Gremlins* is a really great movie. Watch out for *Ghostbusters* too.

Can we please have a picture of you? I'm desperate to see what you look like.
Steven Craig,
Penilee,
Glasgow.

BELOW THE BELT

Has Tony Tyler got some personal reason for his vendetta against Atari? His latest onslaught on American magazines was totally inaccurate. Presumably he based his assumptions solely on the issues whose covers he reproduced. Assembler is covered in one of those issues, complete with listing. Other articles include listings in Forth and Action.

He obviously didn't find out much in the time he owned an Atari or he would have known that *Atari Connection* is the 'in-house' magazine that was sent free to all registered owners like Britain's *I/O*. As such, you can't expect to see much in it.

Finally, if these magazines are aimed at the novice how low is the market your magazine is aimed at?
Ken Ward,
Lakenham,
Norwich.

T.T. reacts:
●*Vendetta? Onslaught? My love for Atari products knows no bounds — it is no exaggeration to say I would willingly lay down my life for Atari Corp. — while my ignorance of all this user group stuff (thank you for enlightening me, by the way) was based solely on the fact that Atari Corp. (for whom I would lay down my life) lent me my 800 (which is why I would cheerfully lay down my life, etc.) — and as a result I never got onto any subscriber lists. Therefore, etc.*

As for what sort of level BIG K is aimed at . . . why, YOUR level, Ken. You read it, didn't you?

P.S. You haven't got a beard by any chance, have you?

AMSTRAD WRITES . . .

Shock horror. I read John Conquest's review of the noble Amstrad and wasn't at all sure what to make of it. He seems to have made some subjective assessments without the benefit of all the facts.

Firstly, it was designed by Roland Perry. He won't change his name for anyone — not even BIG K.

Amsoft has certainly taken a hard line with some software houses who were initially invited to participate in pre-launch development. When it looked as if the very expensive hand-built prototypes were not actually being put to good use, we repossessed them and gave them to other houses who've proved more vigorous.

All the firmware information necessary to write on the machine has been published well before we started advertising the hardware, so my conscience is clear. We naturally intend to handle as much software as possible since as you frequently observe, the availability of software is crucial to the success of a machine — and I'm rather relieved we didn't leave it up to those whose Ferraris and crates of Dom Perignon are now resting in the hands of receivers up and down the land. Firms with pretensions to even bigger things like Jumbo Jets make me even more nervous.
William Poel,
General Manager,
Amsoft.

ALL K'D UP AND NOTHING TO LOAD . . ?

I've just got a 48K Spectrum but don't know what software to buy. Please send me your recommendations for adventure and arcade-type games.
Mark Schutz,
Enderby,
Leicester.
●*With over 5,000 recorded items of software available for the Spectrum, your best bet is to keep up to date with* BIG K*'s reviews.*

COMPUTER SNOB WAR — EARLY WARNING

Isn't it about time that the sadistic, full-scale, bloody battle between different computer owners is stopped? Everywhere I go I hear "Look at the Spectrum keyboard! How utterly yuck!" or "Oh. The BBC has the very best BASIC, ahem." I own a CBM 64 and am always being persecuted for my 'prehistoric BASIC'.

But what are they getting their knickers in a twist about? They don't have to use it. Surely one computer is as good as another to its user. We all have to get to grips with our machine's good and bad points. So who cares what computer they have next door?
Trevor O'Grady,
London SE2.

I recommend the following musical accompaniment for these games:
Jet Set Willy (Our House — Madness)
Atic Atac (Thriller — Michael Jackson)
Sabre Wulf (In The Jungle — Tight Fit)
Micro Olympics (Gold — Spandau Ballet)
Lunar Jetman (War Head — UK Subs)
Chequered Flag (Driving In My Car — Madness)
Jet Pac (Walking On The Moon) — The Police)
Simon Curtis,
Basingstoke,
Hants.
●*How about playing "Imagine no possessions . . ." for a certain*

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Liverpool software company? (ex). I've heard it's good music to move to . . .

A question for disassembling folk: Who has an infinite lives POKE for Ocean's *Moon Alert*? Zem, Squornshellous Zeta.
A. G. Gatner,
Guildford,
Surrey.
●*And what do you have for breakfast, A.?*

In answer to last month's question on how to kill the dragon in *Twin Kingdom Valley*. Get the 'Staff of Power' off the witch in one of the other towers.
Gerald McLaren,
Glasgow.

SABRE GOOF

Have you spotted the mistake in issue six's *Sabre Wulf* map? You only showed four possible amulet sites, whereas I've found at least 16. Here's my tip list:

Use the red, blue and purple (disorientation) orchids as much as possible. Ignore all small-fry treasure in corridors and rooms. They may increase your score, but they don't enhance your chances of either finding the Amulet pieces or your 'percentage of game completed' score. You'll lose valuable lives trying to collect these pieces of rubbish!

Collect all the red statues. They give extra lives (nine max). Don't fully enter a room unless it contains a useful item. The penalty is probable loss of life.

If you don't have all four amulet pieces upon entering the Temple — you have no defence against the Guardian. Always use an orchid before entering the Wulf's corridor. Remember! You have no defence against the Wulf.

No joystick means no chance of getting a good score. Only take your finger off the fire button in emergencies.

You can't kill the natives! It is better to bash them once with your sword (as with the large animals). Then they'll buzz off in another direction.

Make full use of pause control whenever you find a piece of the Amulet. Assess your position in the room — as the creatures will go for you something terrible!
David Parr,
Washington,
Tyne and Wear.
●***Countless thousands pointed out the Sabre Wulf goof in our map. There was a dead-end where a door should have been. The culprits are now safely incarcerated in the Tomb of Gloom, one level below the Tower of Power. Thanks for timely correctives from — Jeremy Diccox, Tim Bailey, Andrew Brown, Douglas Nolan, Colin Grahamshaw and Carol Nolan to name but a few.***

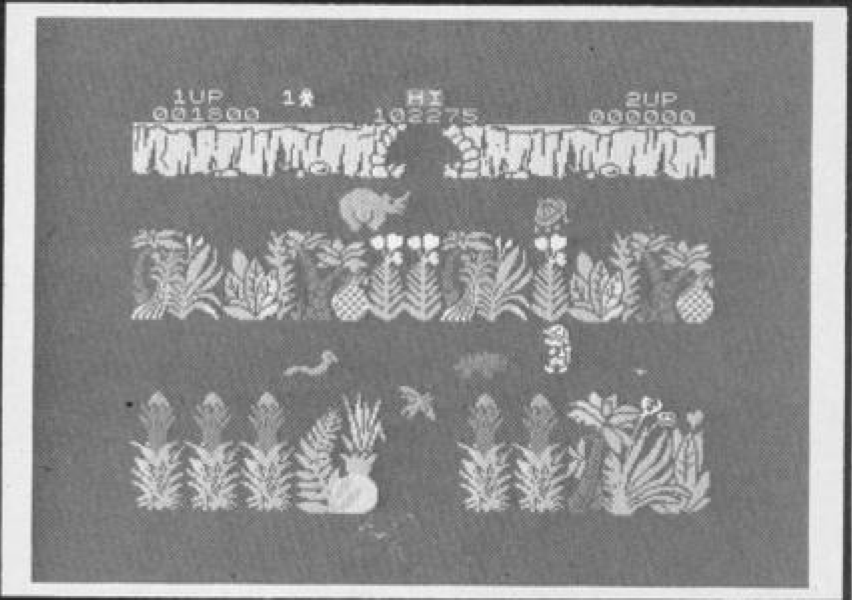
WULF SABRED . .

I have discovered a sure-fire way to conquer *Sabre Wulf* and get to the final screen. I am giving you my theory in response to your request for tips in No. 6. My map is divided into grid squares numbered from 0 to F on each axis in the hexadecimal base, so that each square can be referred to by a two digit number. So you start at 8A.

Amulet positions can be found in six different places. For example, if you find your first piece in square 7A, the other pieces will be in squares 2E, 19 and 95. Each of the six positions containing the six pieces are shown in the table below:

Route no.	1st piece	2nd piece	3rd piece	4th piece
1	7A	2E	19	95
2	9A	3C	53	D4
3	7E	34	93	85
4	B	3A	53	62
5	CA	D9	D2	62
6	1E	25	44	D2

The initial player problem is to find the first piece of the Amulet which will be in the first column. Then it's just a matter of finding the others and passing the keeper of the Temple. Most readers should be able to do this, although it takes some practice.
P. Weldon,
Rhyl,
Clwyd.



PIRACY BORE

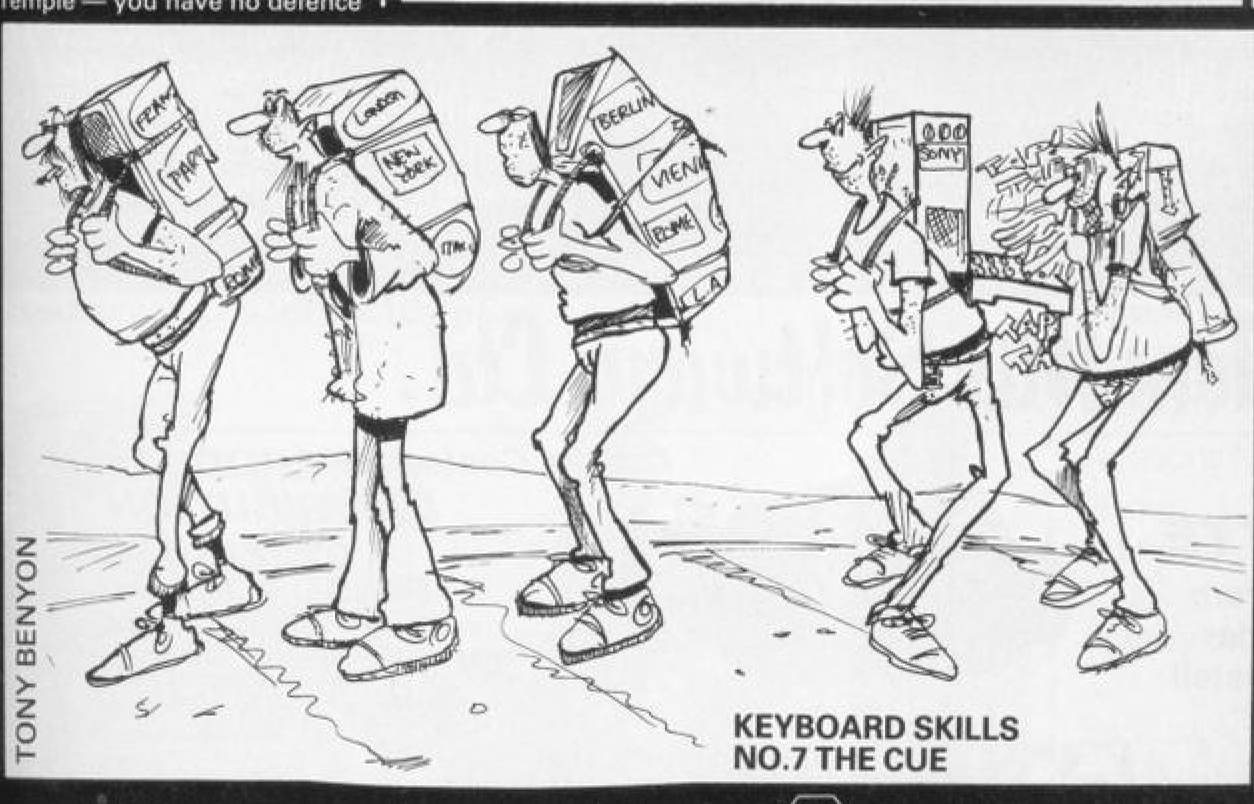
I work in a computer shop and a lot of piracy comes to our attention. Let's face it, it's not that prices are too high. It's just that punters prefer not to pay. Remember — piracy lengthens the dole queues of the future!
P. Clevett,
Tadworth,
Surrey.
●***That's enough piracy for one issue.***

GULPO

SOMETIMES these things happen. A guy writes something. It's good. You print it. Then comes Headline time. And the guy who knows who actually wrote the piece is off on holiday, while the guy left behind — who doesn't know — assumes it was written by the guy he expected it to be written by.

Yes, folks, this is the real — the true — story behind the Great Atari Player Missile Louse-up. It *wasn't* written by ace Staines programmer Nigel Farrier (as we said). It was written by ace Scots programmer Alex Boitz. Grovelling apologies to both.

The other miserable self-shaft in recent times involved the absolutely ace conversion of the PET original CBM Golf game by Jon Bull. We had this ongoing industrial dispute, see, and following the any-port-in-a-storm principle, we out farmed the layout to a freelance artist. Now this chap is a worthy chap but he didn't fully appreciate that lines have to be in the right order. (He has since been shot.) So . . . if any CBM owners out there are having more than the usual difficulty running this game, just contact us and we'll send you an intact listing.



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CONTINUED FROM P.83

SIMON SIMON SIMON

```
ER 1;"  ";AT 13,13;"  ": BEEP a,
3: PRINT AT 12,13; PAPER 0; BRIG
HT 0;"?";AT 13,13;"?"
6137 IF i$="4" THEN PRINT AT 12,
15; INK 0; PAPER 4; BRIGHT 1; OV
ER 1;"  ";AT 13,15;"  ": BEEP a,
4: PRINT AT 12,15; PAPER 0; BRIG
HT 0; INK 4;"/ ";AT 13,15;"*"
6138 GO TO 6130
6140 PRINT AT 15,13; INK 7; PAPE
R 0; OVER 1;"             ": GO S
UB 6500
6150 PRINT AT 17,0; INK 6;" If y
ou get into dificulties youcan p
ress key "c"{clue or cheat}this
will then play the sounds  but n
ot print the colours.": GO SUB 6
500
6155 PRINT AT 19,7; INK 6;"G O O
 D  L U C K !": GO SUB 6500: RET
URN
6160 GO SUB 6500: RETURN
6500 DIM y$(128): LET z$="-=<PRE
SS ANY KEY TO CONTINUE!>=-"
6510 PRINT #0;AT 1,0; INK 1; PAP
ER 7; BRIGHT 1;z$: PRINT AT 2,0;
 INK RND*4+4; PAPER 0; OVER 1;y$
6520 LET z$=z$(2 TO )+z$(1): IF
INKEY$<>"" THEN POKE 23606,0: GO
 TO 6550
6530 GO TO 6510
6550 INPUT "";: FOR f=7 TO 0 STE
P -1: FOR g=Z TO 21: PRINT AT g,
0; INK f; PAPER 0; OVER 1;"
                            ": BE
EP .002,g+f: NEXT g: BEEP .02,g+
f: NEXT f
6560 FOR f=Z TO 21: PRINT AT f,0
;"
  ": NEXT f
6570 RETURN
6999 STOP
7000 CLS : PRINT AT 2,4; INK 4;
BRIGHT 1;"SIMON
"
7010 PRINT INK 5;'"  © Anthony J
 Shaw 27:04:84"
7015 LET s$="welkum t(ouu) s(ii)
mon": PAUSE 110: LET s$="riten b
(ii) antun(ee) j(ay)mz (sh)(or)"
: PAUSE 150
7020 DIM q$(2,11): LET q$(1)="Do
 you want": LET q$(2)="ructions
?": LET o$=" the inst"
7030 FOR f=11 TO 1 STEP -1: PRIN
T AT 10,0;q$(1,f TO );AT 10,19+f
;q$(2, TO 11-f);AT 9+f,11;o$;AT
10+f,11;"         ": BEEP .1,f:
NEXT f
7040 FOR f=0 TO 12: PRINT AT 12,
f; INK 3;" [y/n]": BEEP .005,f:
NEXT f
7045 LET s$="w(uh)(dd) y(ouu) l(
ii)k (dth)(ee) instru(ck)(ch)onz
"
7046 PAUSE 165: LET s$="ans(er)
(yy)es (or) n(oo)": PAUSE 100
7050 PRINT AT 2,4; INK RND*4+4;
BRIGHT 1;"SIMON
"
7060 LET i$=INKEY$: IF i$<>"y" A
ND i$<>"n" THEN GO TO 7050
7070 IF i$="n" THEN LET no=1: RE
TURN
7080 LET no=0: RETURN
9000 RESTORE 9010: FOR f=USR "a"
 TO USR "q"-1: READ a: POKE f,a:
 NEXT f: RETURN
9010 DATA BIN 0000,BIN 0000,BIN
0001,BIN 0011,BIN 0110,BIN 1110,
BIN 0000,BIN 0000,BIN 0000,BIN 0
000,BIN 0000,BIN 0000,BIN 0000,B
IN 1111,BIN 1111,BIN 0000
9015 DATA BIN 0000,BIN 11000000,
a,a,a,a,a,a,a,a,a,a,a,BIN 111100
00,BIN 11110000,0
9020 DATA BIN 0000,BIN 0011,BIN
0011,BIN 0100,BIN 1100,BIN 1000,
BIN 0000,BIN 0000,BIN 0001,BIN 0
011,BIN 0110,BIN 1100,BIN 1100,B
IN 1111,BIN 1111,BIN 0000
9025 DATA BIN 0000,BIN 11000000,
BIN 11000000,BIN 00100000,BIN 00
100000,BIN 00100000,BIN 01100000
,BIN 11000000,BIN 10000000,BIN 0
000,BIN 0000,BIN 0000,BIN 0000,B
IN 11110000,BIN 11110000,BIN 000
0
9030 DATA BIN 0000,BIN 0011,BIN
0011,BIN 0100,BIN 1100,BIN 1000,
BIN 0000,BIN 0011,BIN 0011,BIN 0
000,BIN 1000,BIN 1100,BIN 0100,B
IN 0011,BIN 0011,BIN 0000
9035 DATA BIN 0000,BIN 11000000,
BIN 11000000,BIN 00100000,BIN 00
100000,BIN 00100000,BIN 01000000
,BIN 10000000,BIN 10000000,BIN 0
1000000,BIN 00100000,BIN 0010000
0,BIN 00100000,BIN 11000000,BIN
11000000,BIN 0000
9040 DATA BIN 0000,BIN 0001,BIN
0011,BIN 0110,BIN 1100,BIN 1100,
BIN 1100,BIN 1100,BIN 1100,BIN 1
100,BIN 1111,BIN 1111,BIN 0000,B
IN 0000,BIN 0000,BIN 0000
9045 DATA BIN 00000000,BIN 10000
000,BIN 0000,BIN 0000,BIN 0000,B
IN 0000,BIN 0000,BIN 0000,BIN 11
000000,BIN 11000000,BIN 11110000
,BIN 11110000,BIN 11000000,BIN 1
1000000,BIN 11000000,BIN 0000
9999 REM
```

USER DEFINED GRAPHICS

```
A = /   B = _   C = |   D = L
E = /   F = (   G = )   H = _
I = (   J = \   K = )   L = )
M = /   N = `   O = '   P = ▶

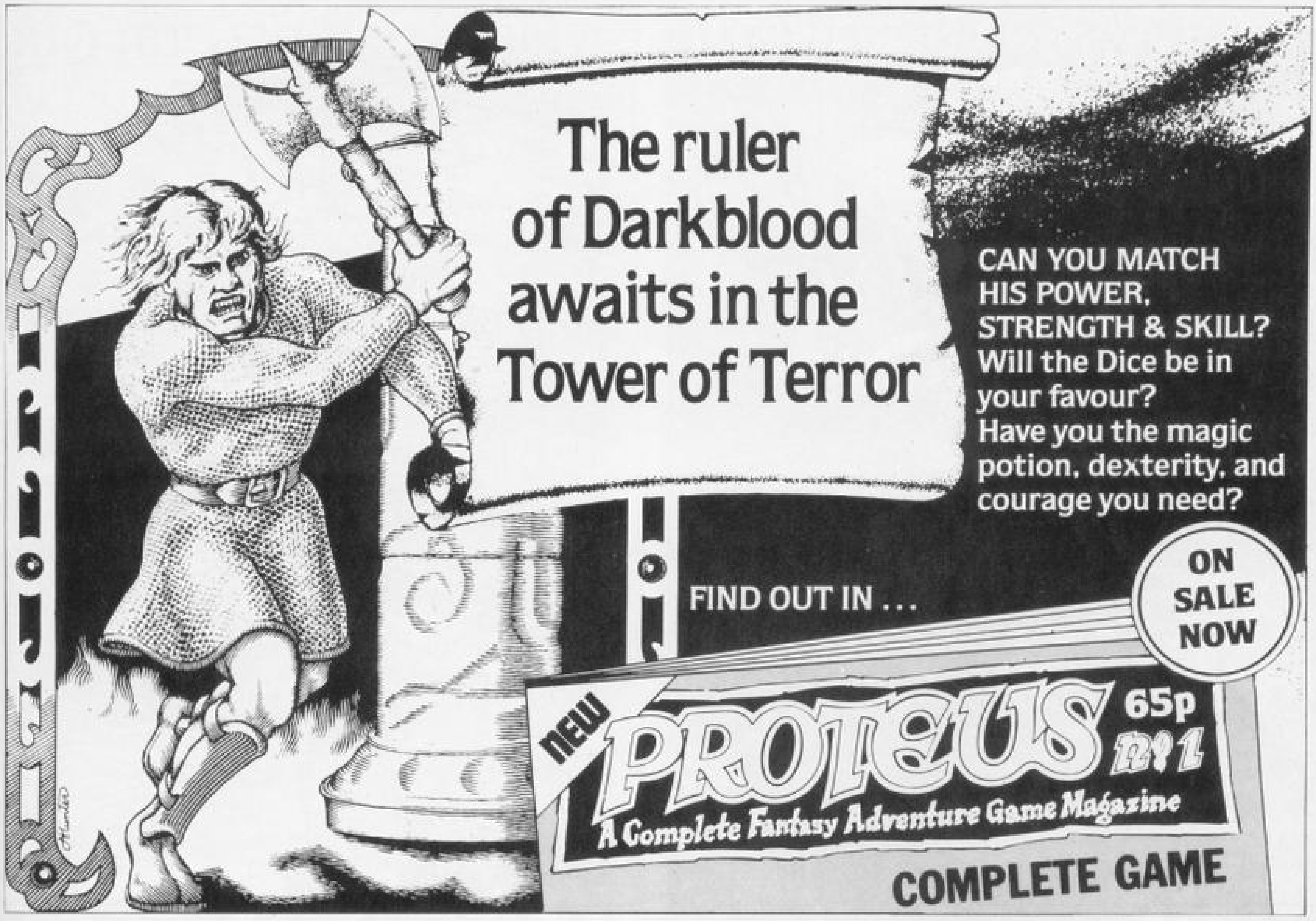
AC       EG       IK       MO
BD = 1   FH = 2   JL = 3   NP = 4
```

THE END

CAVERN BOMBER

CONTINUED FROM P.109

```
1790PRINT TAB(A%,Q%);CHR$R%;CHR$141;W$
1800NEXT
1810ENDPROC
1820:
1830:
1840DEF PROCintro
1850RESTORE 1970
1860REPEAT
1870READ W$
1880IF W$="NP" OR W$="END" THEN 1920
1890READ L%
1900PROCw(W$,L%)
1910UNTIL 0
1920IF W$="NP" THEN PROCw(CHR$136+"Pres
s any key to continue",23):A=GET:CLS
1930UNTIL W$="END"
1940ENDPROC
1950:
1797:
1970DATA Bomber,38,======,40,by,43,Jame
s McPherson,47,"NP"
1980DATA "You are in an aircraft, which
is",5,"flying in an ever narrowing tunn
el.",6
1990DATA "BOMBER",31,"You have to contr
ol the craft",8,"to avoid hitting the ro
cks above",9,"and below you.",10,"Added
to your problems is the fact",13,"that y
ou fuel is running out",14,"and the only
 way to gain more",15
2000DATA "fuel is to destroy fuel dumps
( ^ )",16,"on the ground.",17,"NP"
2010DATA "CONTROLS   ",36,"Z.....left ",
10,"X.....right",12,"*.....up    ",14,"?.
....down ",16,"<SHIFT>...fire",18,"NP","
END"
2020:
2030:
2040DEF PROChiscores
2050UNTIL -1
2060IF SC%<S%(10) THEN GOTO 2240
2070PLACE=0
2080FOR Q%=1 TO 10
2090IF SC%>S%(Q%) THEN PLACE=Q%:Q%=10
2100NEXT
2110CLS
2120PROCw("Congratulations !!",41)
2130PROCw("You are "+STR$(PLACE)+" out
of 10",44)
2140PROCw("Please put in your name",47)
2150PRINT TAB(10,21);
2160*FX15 0
2170INPUT N$
2180FOR Q%=9 TO PLACE STEP -1
2190S%(Q%+1)=S%(Q%)
2200N$(Q%+1)=N$(Q%)
2210NEXT
2220N$(PLACE)=N$
2230S%(PLACE)=SC%
2240CLS
2250PROCw("Hiscores",30)
2260FOR Q%=2 TO 11
2270PRINT TAB(0,Q%*2-1);CHR$(128+RND(7)
);Q%-1;TAB(12);S%(Q%-1)
2280PRINT TAB(23,Q%*2-1);N$(Q%-1)
2290NEXT
2300PROCw("Press any key to continue",2
3)
2310*FX15 0
2320A=GET
2330ENDPROC
>
```



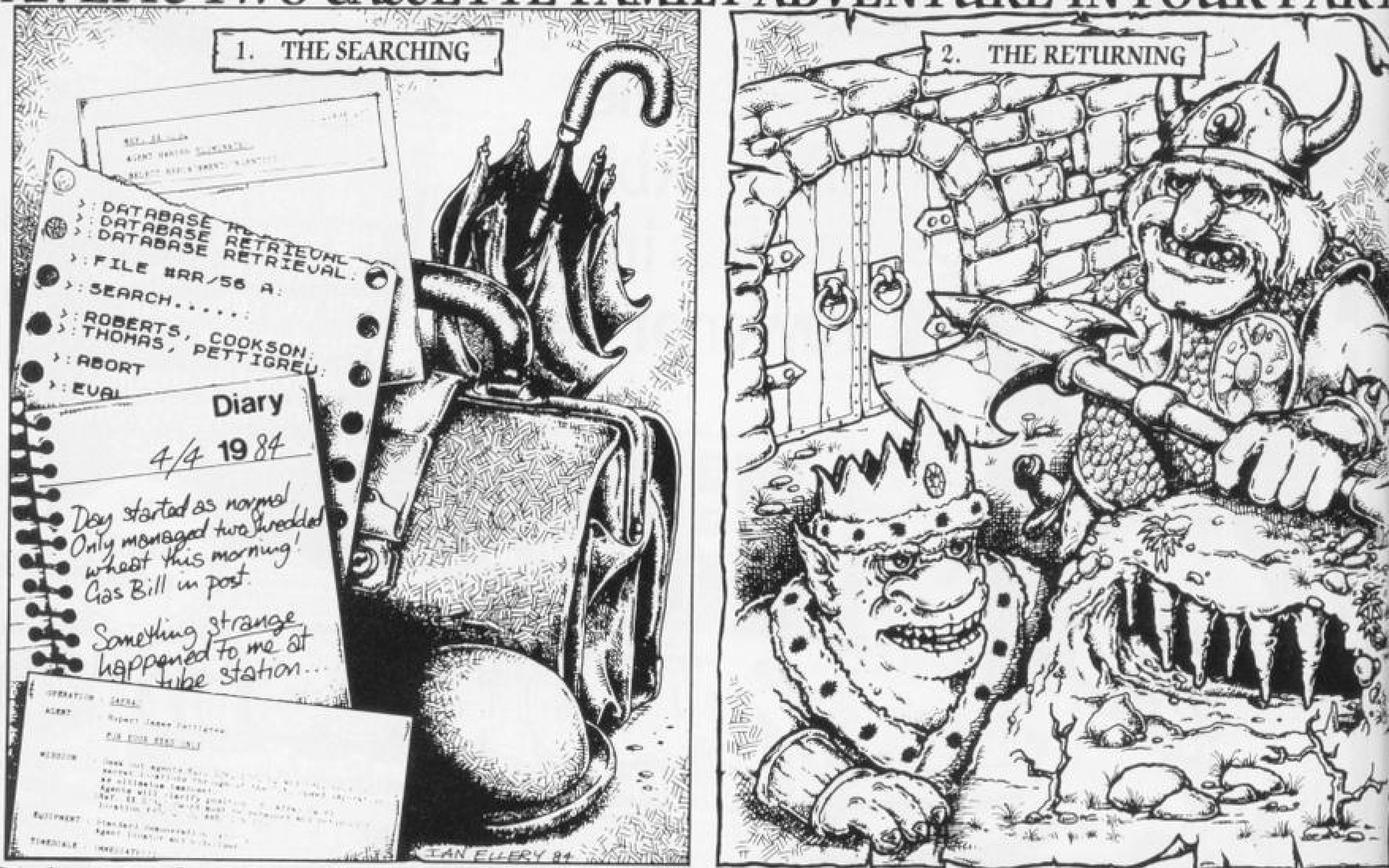
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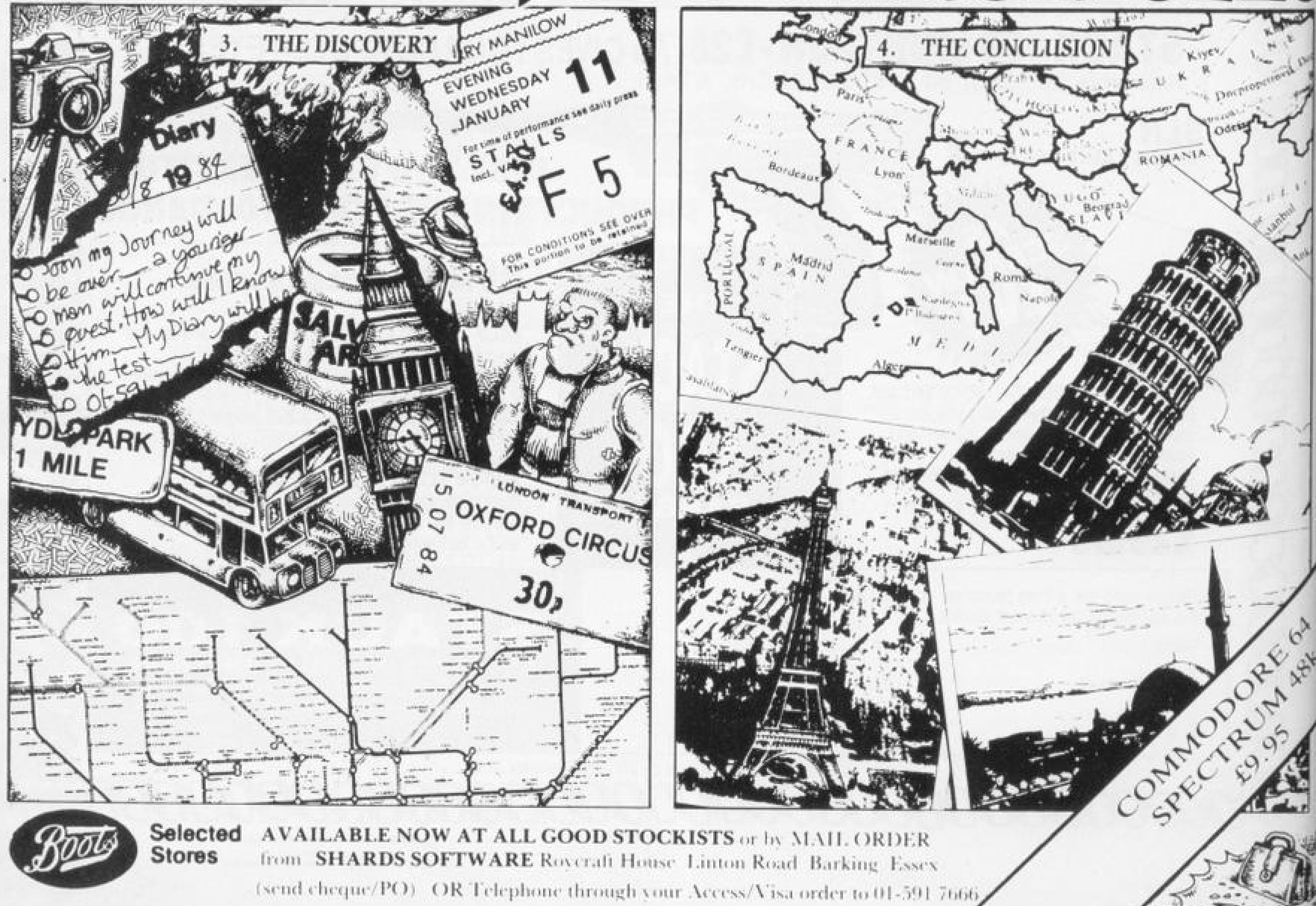
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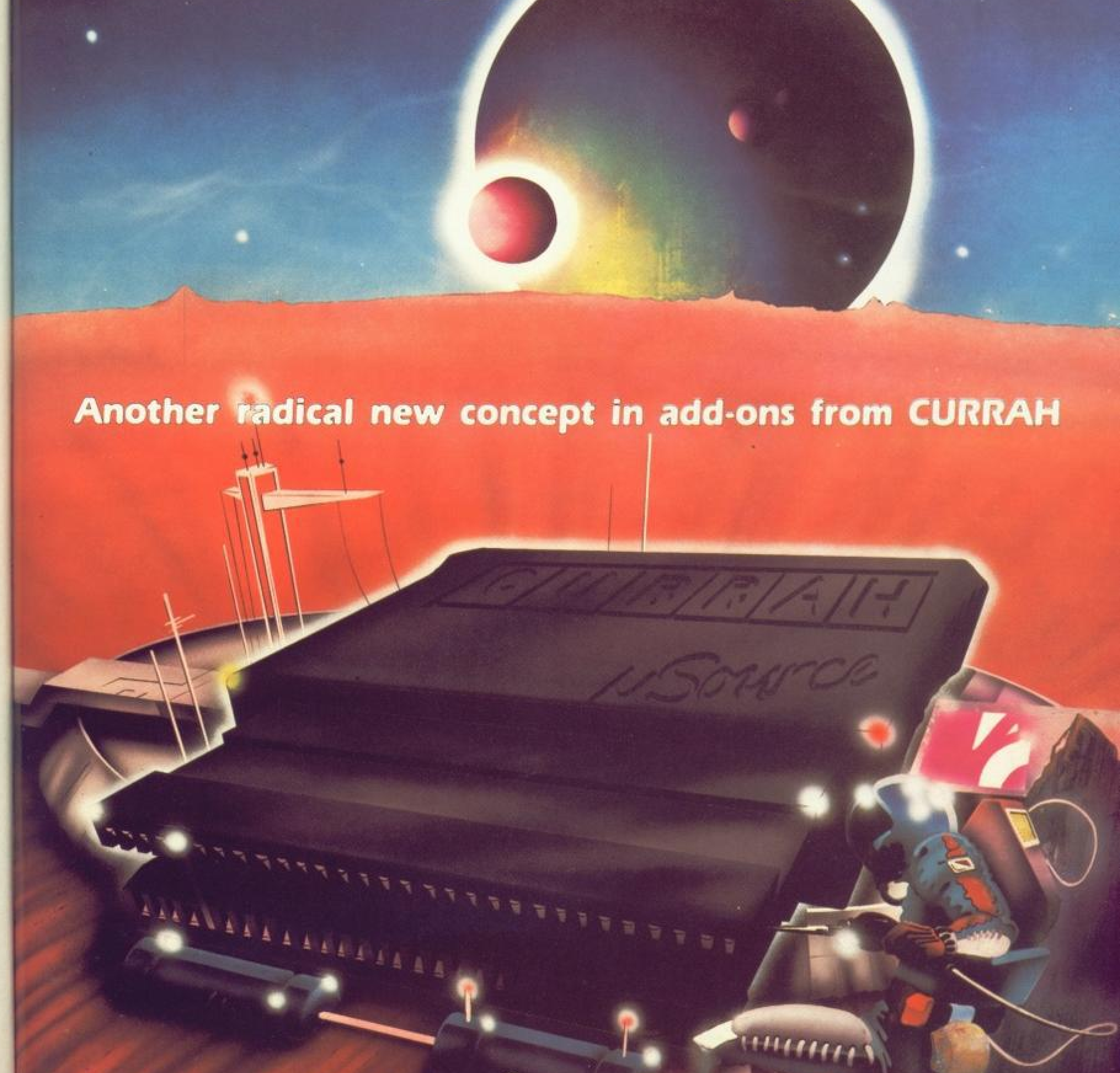
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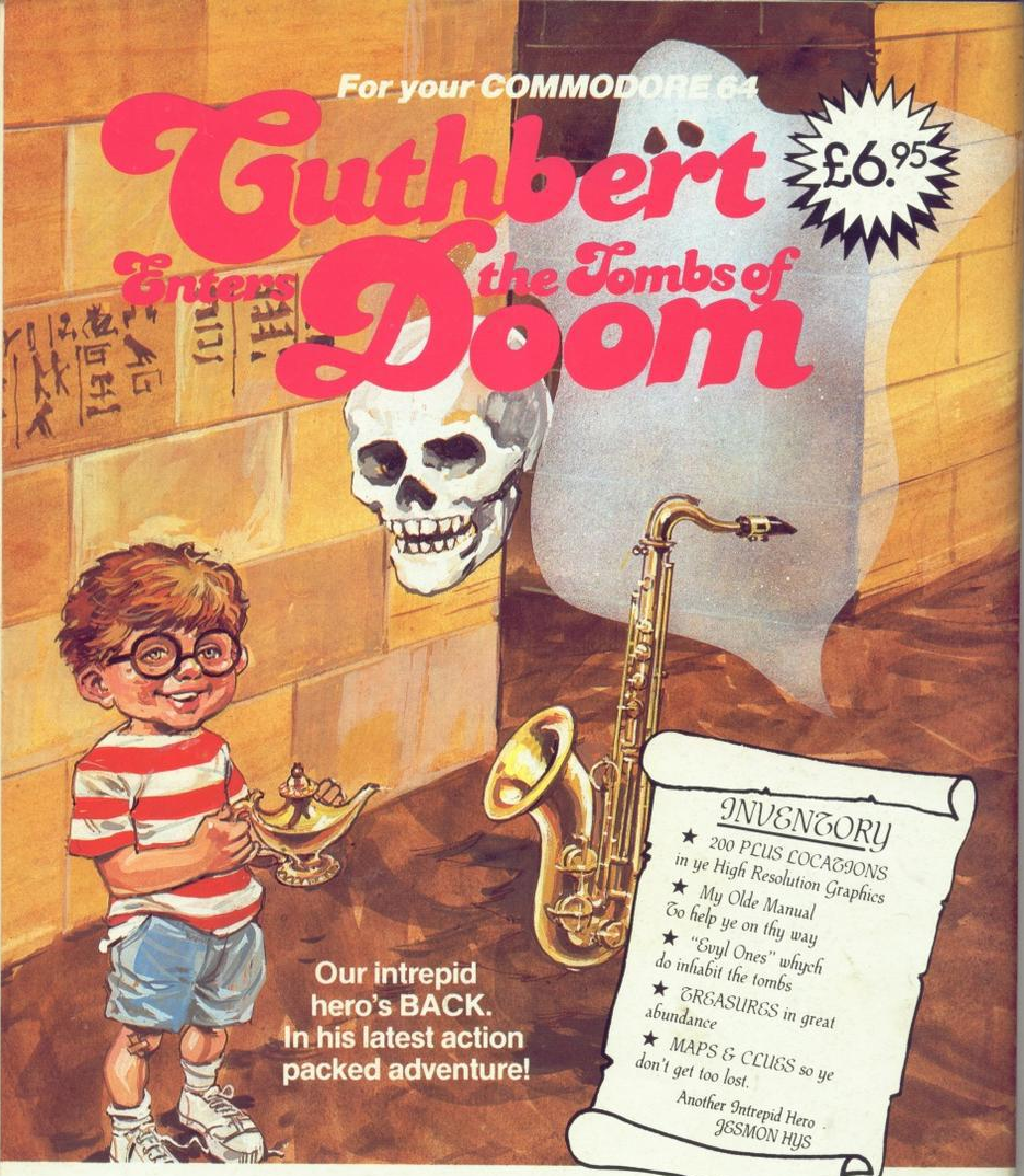
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